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**REASON UNBOUND: A NEO-RATIONALIST MANIFESTO**

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**REASON UNBOUND: A NEO-RATIONALIST MANIFESTO**

by

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**Dissertation**

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

**Doctor of Philosophy**

**The University of Texas at Austin**

**May 2017**

*For my parents, Tasneem and Abid Amjee*

## Acknowledgements

First and foremost, I would like to thank my two supervisors, Mark Sainsbury and Robert Koons. I will forever be in their debt. Mark taught me how to be a conscientious, disciplined, and morally upright philosopher. As someone who is neither a slave to fashion, nor a seeker of disciples, he encouraged me to pursue my own thoughts (especially when he disagreed, which was often). Rob provided a constant source of professional guidance. Frequently my first stop when I had a radical or inchoate idea, Rob was remarkably non-judgmental, and often helped me find the grain of truth in fledgling ideas.

In addition to my supervisors, I was fortunate to have a committee that constantly kept me on my toes. Michael Della Rocca—the world’s foremost expert on the Principle of Sufficient Reason—was a guiding light for matters historical, metaphysical, and professional. Without his support, I might have been more wary of defending a rationalist conclusion that few philosophers now endorse. Jessica Wilson’s close attention to philosophical detail, unwavering support, and philosophical fierceness has been invaluable. She continues to serve as a model for how I wish to be as a philosopher. Jon Litland’s astute eye for logical detail saved me from many an error. And by regularly coming up with almost-but-not-quite devastating objections, Jon made sure that my conclusions remained grounded in sound argumentation. Finally, my dissertation would most certainly have been worse-off without Josh Dever’s constructive criticism. But Josh was more than a mere critic: Josh’s uncanny ability to lay out every possible way out of a problem rescued me from many a philosophical impasse.

These six philosophers have shaped my approach to metaphysics and the history of philosophy, and molded me as a thinker. They helped me find my footing (often painfully) in an academic culture that expects a lot very fast. They have been my teachers, mentors and friends, and it has been my privilege to know them.

My dissertation (and overall philosophical progress) has benefited from many conversations with other faculty members at the University of Texas at Austin. These faculty members include Ray Buchanan, Sinan Dogramaci, Matt Evans, Hans Kamp, and Al Martinich. In addition, many philosophers outside the University of Texas at Austin influenced my thinking and enriched my work through conversation and written feedback. They include Ralf Bader, Derek Ball, Karen Bennett, Sara Bernstein, Rachael Briggs, David Chalmers, Andrew Chignell, Louis deRosset, Kit Fine, Martin Glazier, Sally Haslanger, Benj Hellie, Philip Kremer, Michael Kremer, Sandra Lapointe, Kirk Ludwig, Penelope Mackie, Ofra Magidor, Ned Markosian, Aidan McGlynn, Adam Pautz, Bryan Pickel, Gurpreet Rattan, Gideon Rosen, Jonathan Schaffer, Joshua Schechter, Erica Shumener, Jack Spencer, Kelly Trogdon, Eric Watkins, Brian Weatherson, and Tim Williamson. A special thanks to all of these philosophers.

There are several philosophers—early mentors—who were instrumental in my decision to pursue graduate studies. They include Lisa Fuller, Philip Kremer, Robert Stainton, and Wayne Sumner. An extra special thanks to these philosophers for showing me why the pursuit of philosophy is important.

A number of friends in philosophy contributed a great deal to my graduate experience. Thanks especially to Simona Aimar, Nora Berenstain, Caroline Christoff,

Kimberly Dill, Nora Grigore, Elliot Goodine, Alex Grossman, Simone Gubler, Ivan Hu, Megan Hyska, Li Kang, Brian Knab, Sam Krauss, Brian Miller, Lisa Pelot, Katherine Ritchie, Briana Toole, Ivy Tsoi, and Casey Woolwine.

I could not have succeeded as an academic without the ongoing support of family and close friends. Among these, I would like to extend a special thanks to Tashi Alford-Duguid, Jeff Alford, Paul Burke, Naomi Duguid, Dina Fayerman, Zainab Habib, Insiya Jafferjee, Janet Leong, Husain Mandviwala, Robin Nelson, Ernie Nelson, Ed Rek, Saima Shikari, Ilse Wong, Dawn Woodward, and Evelyn Woodward-Rek.

Finally, a loving thanks to my aunt and uncle Gulzar and Munir Shikari, my late aunt Khatoon-Nissa Kapasi, my sisters Maryam and Alefiyah, my brother Hussein, my nieces Ruqaiya and Zahra, my cousin (and honorary brother) Shabbir Ahmedali, my grandmothers Batul Kapasi and Banu Amijee, and my parents (to whom this dissertation is dedicated). Their support has been unconditional, as has their love. Last, but not least, I would like to extend a loving thanks to my partner and best friend Dominic Alford-Duguid, without whose support and encouragement I would not have started graduate school, and would certainly not have finished.

# **Reason Unbound: A Neo-Rationalist Manifesto**

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The University of Texas at Austin, 2017

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The Principle of Sufficient Reason (PSR) holds that everything has an explanation. My dissertation defends the PSR—a principle that many take to be a prime tenet of the rationalist metaphysics of Leibniz and Spinoza—from three influential challenges: (1) that we lack reason to accept the PSR; (2) that the PSR entails that the world could not have been otherwise; (3) that the principle is inconsistent with the now widespread recognition of metaphysically fundamental facts. By answering these challenges, I resist the contemporary dismissal of this central rationalist tenet. To endorse the PSR requires rejecting any view that admits unexplained or ‘brute’ facts. But such views are pervasive in contemporary metaphysics. My dissertation therefore lays the foundation for a substantial revision of the current metaphysical landscape.

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## Introduction

The Principle of Sufficient Reason (PSR) holds that everything has an explanation. Many take the principle to be a central tenet of the rationalist metaphysics of Gottfried Leibniz and Baruch Spinoza, serving as a ground for many other downstream commitments. But the principle has few contemporary proponents.<sup>1</sup> This shift in the principle's popularity partly traces to its being traditionally bound up with a theistic metaphysics: one on which God figures as the ultimate explainer. Indeed, extant versions of the cosmological argument explicitly rely on the PSR as a crucial premise. But the shift in the principle's popularity also traces to substantive (rather than merely sociological) reasons. The PSR is widely assumed to have significant—and for many, unpalatable—consequences. These consequences include the thesis that the world could not have been otherwise, the principle of the identity of indiscernibles, the principle of plenitude (the principle that anything that is possible is realized), and the existence of God.

My dissertation resurrects a secular PSR by answering three core challenges to the principle—challenges that have prevented many contemporary philosophers from taking the PSR seriously. These challenges are (1) that we lack reason to accept the PSR; (2) that the PSR entails that the world could not have been otherwise; (3) that the principle is not consistent with the now widespread recognition of metaphysically fundamental facts. By answering these challenges, I resist the contemporary dismissal of this central rationalist

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<sup>1</sup> These contemporary proponents include Della Rocca (2003, 2010) and Pruss (2006). Dasgupta (2014) also sketches—though does not defend—a rationalist position on which the relevant sense of explanation involved in the PSR is metaphysical explanation.

tenet. To endorse the PSR requires rejecting any view that admits unexplained or ‘brute’ facts. But such views are pervasive in contemporary metaphysics. My dissertation therefore lays the foundation for a substantial revision of the current metaphysical landscape.

I first argue that a commitment to the PSR is indispensable to the practice of metaphysical inquiry. A subject engages in ‘metaphysical inquiry’ just in case she seeks, for some fact, to understand why that fact obtains. Much as the indispensability of mathematical entities to scientific practice provides reason to accept the existence of these entities, the indispensability of a commitment to the PSR to metaphysical inquiry provides an answer to the first challenge.

My argument for the indispensability claim rests upon a surprisingly minimal foundation: the widely endorsed and relatively uncontroversial action-theoretic thesis that if intends to do something, one is committed to being able to do it. Suppose, for example, that I intend to a bake. Then according to the action-theoretic thesis, I am committed to being able to bake a cake. Indeed, to say “I intend to bake a cake for your birthday, but I don’t know if I’m able to” has the ring of practical paradox.

I deploy this action-theoretic thesis to generate two distinct claims. The first claim is that when I intend to engage in metaphysical inquiry, I am committed to being able to engage in metaphysical inquiry. The second claim is that when I intend to explain why a particular fact obtains, I am committed to being able to explain why it obtains. I then argue that—when combined with the claim that engaging in metaphysical inquiry is rationally non-optional for us—the action-theoretic thesis generates a rational commitment to the PSR.

The second challenge I address in the dissertation charges that the PSR entails that the world could not have been otherwise. I argue that this challenge rests upon an uncritical acceptance of a principle governing metaphysical explanation: the principle that no necessary fact can, on its own, explain a contingent fact. I answer the challenge by showing that the principle is false. The falsity of this principle entails the falsity of Necessitation, the widely endorsed principle according to which if one fact metaphysically explains another, then necessarily, if the first fact obtains then so does the second. Rejecting the two principles entails that metaphysical explanation is contingent.

My argument proceeds by showing, first, that in the temporal case, a temporary fact (one that obtains at some but not all times) can be explained by an eternal fact (one that obtains at all times). I then argue that a parallel argument in the modal case shows that a contingent fact (one that obtains at some, but not all world) can be explained by a necessary fact (one that obtains at every world). An important upshot of my argument is that it allows a proponent of the PSR to be committed to contingent facts.

The third challenge to the PSR charges that a commitment to the PSR is inconsistent with a commitment to fundamental facts. But (as I will show) fundamental facts do crucial explanatory work in metaphysics, such as providing the most promising way to make sense of claims about comparative fundamentality (i.e. claims about what is more basic than what). Giving up the commitment to fundamental facts thus appears to be a significant cost for any proponent of the PSR.

In my last chapter, I argue that a tension between a commitment to the PSR and a commitment to fundamental facts only arises if one presupposes the very widely-endorsed

metaphysical dogma that fundamentality is an absolute property. Call this ‘absolutism’ about fundamentality. If fundamentality is a property that facts or entities have absolutely, a fact or entity cannot be both fundamental and not fundamental at the same world at the same time (though its fundamentality may vary across worlds, and perhaps even across times). I argue that absolutism about fundamentality is false. In its place, I defend my preferred alternative, *relativism* about fundamentality, according to which whether a fact or entity is fundamental is relative to a particular *way* of explaining the fact or entity. On this view, one and the same fact may be fundamental with respect to one way of being explained, but not fundamental with respect to another way of being explained, where a way of being explained is a set of metaphysical dependence relations. I argue against the absolutist view of fundamentality by showing that it generates puzzles that don’t arise on my relativized view.

By answering these three challenges, I hope to have provided a springboard for future work on the PSR. I also hope to continue to walk the path first forged by Leibniz and Spinoza, and recently re-forged by Michael Della Rocca.

*Reader’s Guide:* The chapters of this dissertation were written to be self-standing. Achieving this result required introducing some overlap between the chapters, especially in their preliminary sections. Yet because the chapters are self-standing, readers are invited to read them in any order. That said, I do suggest that the place to start is the beginning, for that is where all the best stories begin.

## Chapter 1: Why Metaphysical Inquiry Needs the Principle of Sufficient Reason

Those who are lovers of wisdom must be  
inquirers into many things indeed  
*Heraclitus*

According to the Principle of Sufficient Reason (henceforth ‘PSR’), everything has an explanation. But depending on the scope of ‘everything’ and what we mean by ‘explanation’ we get different versions of the PSR. I focus on a version of the PSR that takes ‘everything’ to range over facts, and ‘explanation’ to be metaphysical explanation. I will argue that we ought to be committed to this version of the PSR.

The PSR was a prime rationalist tenet held in different forms and to varying extents by Spinoza, Leibniz, and Kant (among others).<sup>1</sup> But it has since fallen out of vogue: few contemporary philosophers endorse any version of the principle.<sup>2</sup> My aim is to show that this dismissive attitude is not warranted. I develop my argument in two stages. First, I show that participating in metaphysical inquiry—the practice of seeking metaphysical explanations—commits one to the PSR, not merely as a regulative principle (i.e. as a condition for intelligibility or a principle that merely guides inquiry), but as a principle that

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<sup>1</sup> The PSR played a central role in medieval and early modern philosophy. For instance in his fourth letter to Clarke, Leibniz writes:

Those great principles of *sufficient reason*, and of the *identity of indiscernibles*, change the state of metaphysics. That science becomes real and demonstrative by means of these principles; whereas before, it did generally consist in empty words. (Leibniz 1989b, p. 328).

There is some disagreement over the status of the PSR in Spinoza’s system. See, for instance, the debate between Daniel Garber (2015a, 2015b) and Michael Della Rocca (2015).

<sup>2</sup> Some notable exceptions include Della Rocca (2010) and Pruss (2006). Dasgupta (2016) also sketches—though does not defend—a rationalist position on which the relevant sense of explanation involved in the PSR is metaphysical explanation (or equivalently for Dasgupta, grounding).

tells us how the world is structured. Second, I show that we ought to participate in metaphysical inquiry, and so ought to be committed to the PSR.<sup>3</sup>

An argument for the claim that we ought to be committed to the PSR is distinct from an argument for the claim that the PSR is true. Many foundational principles, including our basic logical laws and axioms, are not apt for proof, because proofs appeal to those very laws and axioms. In these cases, the best we can do is to provide an argument for a *commitment* to such principles. The PSR was thought to have a similar status by some of its most enthusiastic defenders.<sup>4</sup> Given the foundational nature of the principle, I suspect that any attempt to show that the PSR is true would itself depend on the PSR, or on other equally controversial principles. Thus, as in the case of logical laws, perhaps the best we can hope for is an argument for a commitment to the PSR, which is what I provide in this chapter.

I proceed as follows. In §1, I discuss the practice of metaphysical inquiry, and its relationship to metaphysical explanation. In §2, I introduce an action-theoretic thesis and discuss how it applies to metaphysical inquiry. In §3, I develop two distinct ways of bridging the gap between this action-theoretic thesis—as it applies to metaphysical inquiry—and a commitment to the PSR. In §4, I argue that we ought to be committed to the practice of metaphysical inquiry, and consequently, to the PSR. Finally, in §5, I discuss how my argument supplements a prominent alternative argument for a commitment to the PSR.

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<sup>3</sup> Though I am, to my knowledge, the first to argue for the PSR on the basis of our commitment to the practice of metaphysical inquiry, see Enoch (2011) for a structurally related defense of objective moral truths from their indispensability to deliberation.

<sup>4</sup> In Spinoza's *Ethics*, for example, the PSR is implicit in the second axiom of Part I (E1a2): "What cannot be conceived through another, must be conceived through itself." As Della Rocca (2008, p. 5) notes, to conceive something, for Spinoza, is just to explain it. And Leibniz, notwithstanding his attempts to prove the PSR in other places, suggests in his fifth letter to Clarke (§§125) that the PSR is not apt for proof. (Alexander 1956)

## §1 METAPHYSICAL INQUIRY AND METAPHYSICAL EXPLANATION

Metaphysical explanation occupies center stage in contemporary metaphysics. While much of the focus in contemporary debates has been on what formal features govern metaphysical explanation (for example, whether metaphysical explanation is irreflexive), I will focus instead on the practice we engage in when we seek such explanations. Call ‘metaphysical inquiry’ the practice of seeking metaphysical explanations. Let us say that one ‘engages in metaphysical inquiry’ just in case one seeks, for some fact  $p$ , to understand why  $p$  obtains.

We often talk of understanding linguistic entities, such as words, phrases and sentences: we understand them by coming to know what they mean. Let us call this sense of ‘understanding’ *linguistic understanding*. Yet I am not alone when I insist that there also remains a perfectly respectable sense of ‘understand’ that applies not to linguistic entities but to states-of-affairs, to what I have been calling ‘facts’.<sup>5</sup> It is this sense of understanding—understanding *why* a certain fact obtains—that will be relevant in this chapter.

‘Why’ questions can be asked in many ways. Let us try and isolate the sense of ‘why’ that is relevant to metaphysical inquiry. We might ask, ‘Why is the Pythagorean theorem true?’, or ‘Why is murder wrong?’, or ‘Why is the *Mona Lisa* beautiful?’, or ‘Why did the bridge collapse?’, or ‘Why does Sam believe that Clinton will win the election?’. Judging by subject matter, the first question is an instance of mathematical inquiry, the second an instance of moral inquiry, the third an instance of aesthetic inquiry, the fourth an instance of causal (or scientific) inquiry, and the fifth an instance of epistemic inquiry.

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<sup>5</sup> Cf. Hills (2015).

The first three questions also qualify as instances of *metaphysical* inquiry. There is some disagreement about whether the fourth question does, while the last question seemingly does not.<sup>6</sup> Metaphysical inquiry is not distinguished by a particular subject matter but by its form: it is the sort of inquiry that can be reframed by the question ‘What makes it the case that  $p$ ?’, where  $p$  is the fact being inquired into. To ‘metaphysically explain’ a fact is to answer this question.

Metaphysical explanation transcends particular human interests, perspectives or capacities. While the term ‘explanation’ has cognitive connotations, suggesting that there could be no explanation if there were no agents doing any explaining, ‘metaphysical explanation’ is a term of art. It applies to what an omniscient subject (if there was such a subject) would be in a position to explain. Leibniz, for instance, says:

So far we have just spoken as simple physicists; now we must rise to metaphysics, by making use of the great principle, little used, commonly, that nothing takes place without sufficient reason, that is, that nothing happens without it being possible for someone who knows enough things to give a reason sufficient to determine why it is so and not otherwise. (Leibniz 1989a, p. 209)

Leibniz’s statement of the principle implies that a “sufficient reason” is a reason that “someone who knows enough things” could in principle provide.<sup>7</sup> For an example of metaphysical explanation, consider the fact that the direction of line  $a$  is identical to the direction of line  $b$ . Plausibly, this fact holds in virtue of the fact that line  $a$  is parallel to line

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<sup>6</sup> While distinguishing causal and metaphysical explanation is the mainstream view, there are hard questions about whether causal explanation is *really* distinct in kind from metaphysical explanation. One could, for instance, hold the view that causal inquiry is just another instance of metaphysical inquiry (Bennett (ms), Della Rocca (pers. comm)). I remain agnostic on this question. If one is inclined to think that causal explanation is a species of metaphysical explanation, the argument I give in this chapter becomes an argument also for a causal PSR (the claim that every fact that is apt to be causally explained has a causal explanation).

<sup>7</sup> Spinoza too seems to be committed to the claim that a ‘perfect intellect’ could explain everything. Cf. Lin (forthcoming, p. 1).

*b.*<sup>8</sup> Because of this worldly dependence relation between the facts, an omniscient subject could explain the first fact by reference to the second. Hence we can speak of the second fact as a ‘metaphysically explanation’ of the first fact, even if no human beings could formulate or understand the explanation.<sup>9</sup>

For ease of exposition, I will speak as if metaphysical explanation is a relation that holds between those facts that serve as *explanans* and *explanandum*.<sup>10</sup> Instead of ‘a subject who knows all facts and the dependence relations that hold between them could metaphysically explain a fact *q* by reference to a fact *p*’, I will simply say ‘*p* metaphysically explains *q*’. I remain neutral in this chapter on the formal features of metaphysical explanation: it may be irreflexive (or not), transitive (or not), and so on. I also remain neutral as to which relations, and how many relations, underwrite metaphysical explanation, or whether any ‘worldly’ relations underwrite metaphysical explanation. Some insist that a *single* metaphysical dependence relation (‘Grounding’, with a big ‘G’), with a unified set of formal features, serves as the worldly correlate of metaphysical explanation.<sup>11</sup> Some of these theorists argue

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<sup>8</sup> Cf. Frege (1884). While Frege does not use the terms ‘metaphysically explain’ (or their German equivalent), Frege takes the second fact to be prior, in order of explanation, to the first one. Absent arguments to the contrary, there seems to be no reason to prevent this explanatory relation from being of the metaphysical variety.

<sup>9</sup> Philosophers often characterize metaphysical explanation by contrasting it with causal explanation (Cf. Audi 2012, Correia and Schnieder 2012). But characterizing metaphysical explanation as *non-causal* explanation is not only a negative characterization, but also begs the question against those who think that casual explanation is a species of metaphysical explanation (see note 6).

<sup>10</sup> Compare Strawson (1985, p. 115): “...[C]ausality is a natural relation which holds in the natural world between particular events or circumstances, just as the relation of temporal succession does or that of spatial proximity. ... We also speak of one thing explaining, or being the explanation of another thing, as if explaining was a relation between things. And so it is. But it is not a natural relation ... It is an intellectual or rational or intentional relation. It does not hold between things in the natural world, things to which we can assign places and times in nature. It holds between ... truths.”

<sup>11</sup> Cf. Schaffer (2012, 2016) and Audi (2012). Among the original proponents of Grounding are Fine (2001), Schaffer (2009), and Rosen (2010). Since these papers were published, proponents of Grounding have been divided over precisely which formal features the relation possesses.

that Grounding *just is*, rather than underwrites, metaphysical explanation.<sup>12</sup> Opponents of Grounding argue that no single metaphysical dependence relation can play this role, and instead deploy a (formally and substantively) diverse set of metaphysical dependence relations ('grounding relations', with a small 'g').<sup>13</sup>

Successful metaphysical inquiry into a fact requires knowledge of what metaphysically explains (henceforth, I'll often simply say 'explains') the fact. It also plausibly requires knowledge of the explanatory relationship between the *explanans* and the *explanandum*. This further knowledge might be cashed out either in terms of propositional knowledge (i.e. knowledge *that p explains q*) or in terms of non-propositional knowledge akin to knowledge by acquaintance. However, my argument for a commitment to the PSR needs only the minimal claim that successful metaphysical inquiry into a fact requires knowledge of what explains that fact, and so I make no commitments here about the precise nature of what more—if anything—might be required to successfully inquire into a fact.

I characterized metaphysical inquiry as the practice of seeking metaphysical explanations. To characterize the metaphysical (and even more broadly, the philosophical) project in roughly this way is not particularly controversial.<sup>14</sup> It also has historical pedigree: on Spinoza's view, for example, explanation and intelligibility are tightly linked, such that the

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<sup>12</sup> Cf. Fine (2001), Litland (2013), and Dasgupta (2014). Wilson (2016) argues that proponents of such views are guilty of conflating metaphysical explanation—a partly epistemic notion—with metaphysical dependence.

<sup>13</sup> Cf. Wilson (2014) and Koslicki (2015). Wilson argues against both the posited formal features of Grounding and the explanatory utility of positing a single relation to underwrite metaphysical explanation.

<sup>14</sup> Thus Della Rocca (2008, p. 1) says, 'All philosophers seek explanation. All philosophers seek to make the world and our place in it intelligible. To grasp such explanation is the perennial hope and promise of philosophy'; and Raven (2015, p. 7) says, 'The metaphysical project seeks to explain explainable facts by discovering the facts grounding them.'

*explanandum* is understood or ‘conceived’ through its *explanans*.<sup>15</sup> One might worry, however, about how closely Spinoza’s notion of explanation maps onto our own notion of metaphysical explanation. A reason to be skeptical about a close mapping is that Spinoza formulates the PSR in terms of ‘cause’ or ‘reason’:

For each thing there must be assigned a cause, *or* reason, both for its existence and for its nonexistence. (E1p11d2)<sup>16</sup>

But it turns out that even though Spinoza’s formulation uses ‘cause’, this does not pick out our contemporary conception of causation: (1) Spinoza’s PSR applies to abstract entities—such as triangles—that are not apt for standing in causal relations (given our contemporary understanding of causation) (cf. *Ethics* 1p11); (2) for Spinoza, effects are ‘understood’ through their causes or reasons, i.e. a conceptual grasp of an effect requires a conceptual grasp of its cause (cf. *Ethics* 1d3); (3) on Spinoza’s view, unlike on most contemporary views of causation, a cause necessitates its effects (cf. *Ethics* 1a3).

So despite his causal terminology, it would seem that what Spinoza means by ‘cause’ is much closer to the contemporary conception of metaphysical explanation than it is to the contemporary conception of ‘cause’. Of course that isn’t to say that we can *identify* Spinoza’s notion of causation with the contemporary notion of metaphysical explanation: quite apart from the anachronistic character of such an identification, Spinoza made claims about causation that do not find reflection in contemporary accounts of metaphysical explanation (for instance, he denied that causation is irreflexive). Yet my goal here has not been to

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<sup>15</sup> Della Rocca (2008) provides an influential defense of the centrality to Spinoza’s system of this connection between causation and intelligibility. For an extensive discussion of the link between intelligibility and existence in Spinoza, see also Della Rocca (2012). See Lin (forthcoming) for a recent discussion of Spinoza’s view that effects are understood through their causes.

<sup>16</sup> Spinoza’s original formulation of the PSR in the *Ethics* comes in his statement of his second axiom: ‘What cannot be conceived through another, must be conceived through itself.’ (1a2)

defend an interpretation of Spinoza. It has been to draw an illuminating parallel between Spinoza's view that an effect is conceived or understood through its cause, and my thesis that understanding why a fact obtains requires knowledge of what metaphysically explains it.

## §2 AN ACTION-THEORETIC THESIS

In §3 I will present two distinct arguments for the claim that metaphysical inquiry commits us to the PSR. While distinct, the arguments are closely related in that they both rest on a relatively uncontroversial thesis drawn from the philosophy of action. This is the thesis that if a subject rationally intends to  $\phi$ , she is committed to being able to  $\phi$ . Call this the 'Intention-Commitment Thesis'.

*Intention-Commitment Thesis:* If a subject rationally intends to  $\phi$ , she is committed to being able to  $\phi$

Importantly, the thesis is not that in intending to  $\phi$  I am committed to the claim that *for all I know*, I am able to  $\phi$ . It is rather that in intending to  $\phi$ , I am committed to my being able to  $\phi$  *as a matter of fact*. For example, if I rationally intend to take the six o'clock train into the city, I am committed to my being able to take the six o'clock train. This commitment rationally mandates certain other commitments, such as a commitment to the existence of a train that runs at six o'clock: if there were no such train, I would not be able to take it.<sup>17</sup>

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<sup>17</sup> The claim here does not entail that I am not also committed, for instance, to there being no trains running that day. I may be an irrational agent with inconsistent commitments. Or my commitments may be fragmented such that I am rationally committed to two inconsistent claims. (See Rayo 2013 for a detailed discussion of fragmented cognitive states).

The Intention-Commitment Thesis is much weaker than the widely endorsed cognitivist claim that if a subject intends to  $\phi$ , she believes that she is going to  $\phi$ .<sup>18</sup> It is weaker in three respects. First, the subject who intends to  $\phi$  is committed merely to being able to  $\phi$ , and not to the claim that she will  $\phi$ .<sup>19</sup> Second, the subject who intends to  $\phi$  is simply *committed* to being able to  $\phi$ , and so, need not *believe* that she is able to  $\phi$ . The relevant type of ‘commitment’ here is a cognitive one. While all beliefs are cognitive commitments, I remain neutral on whether all cognitive commitments are beliefs.<sup>20</sup> Stepping back from the claim that the subject who intends to  $\phi$  believes that she is able to  $\phi$  allows us to avoid quibbles about what sort of commitment the subject incurs in intending to  $\phi$ , thus making the Intention-Commitment Thesis much less controversial than the already relatively uncontroversial thesis involving belief. Third, my thesis restricts the relevant intentions to those that count as rational (so someone with an irrational intention to  $\phi$  might lack the committed to being able to  $\phi$ ). As such, the Intention-Commitment Thesis is a normative claim: instead of saying that a commitment to being able to  $\phi$  is necessary for the intention to  $\phi$ , it says only that it would be irrational to intend to  $\phi$  without a commitment to being able to  $\phi$ .

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<sup>18</sup> Cf. Audi (1973), Harman (1976), Davis (1984), Velleman (1989), and Ross (2009).

<sup>19</sup> See Wallace (2001) for a proposal on which the belief involved in intending to  $\phi$  is the belief that it is possible that one  $\phi$  (i.e. a subject who intends to do something believes that it is possible for her to do what she intends). Though the language of ‘possibility’ may misleadingly suggest that the relevant claim is that in intending to  $\phi$ , I am committed to  $\phi$ -ing in some, or other, metaphysically possible world, the claim is rather that in intending to  $\phi$ , I am committed to my being *able* to  $\phi$  in *this* world.

<sup>20</sup> For an example of a cognitive commitment that need not be a belief, consider the widely endorsed claim that to believe that  $p$  is to take it to be true that  $p$ . When a subject takes it to be true that  $p$ , she surely does not believe *that*  $p$  is true. Such a belief would implausibly require the subject to possess the concept of truth anytime she believes a proposition  $p$  (Cf. Chignell 2010). Yet she is nevertheless cognitively committed to the truth of  $p$ . Intentions are another example of cognitive commitments that need not be beliefs (Cf. Dickie 2015).

While my arguments in §3 will take as their starting point the action-theoretic thesis that when I rationally intend to  $\varphi$ , I am committed to my being able to  $\varphi$ , the *intention* to  $\varphi$  is not necessary in order to incur such a commitment. In particular, the following ‘secondary’ action-theoretic thesis is also true: in rationally *trying* to  $\varphi$ , I am committed to my being able to  $\varphi$ . Call this the ‘Trying-Commitment Thesis’. This thesis will figure later in §4.1 when I address objections to my characterization of metaphysical inquiry.

To see why the Trying-Commitment Thesis is true, suppose that I am trying to catch the six o’clock train, but am not committed to my being able to catch the train. My attempt to catch the train would then surely be irrational. Of course, I could rationally try to catch the train while not knowing whether I’ll in fact catch the train, or even whether I am able to catch the train. But not knowing whether I am able to catch the train is consistent with a commitment to my being able to catch the train: just as I can believe something without knowing it, I can be committed to being able to do something without *knowing* that I am able to do it. What I cannot do is rationally try to catch the train while knowing that I will not make it. For just as one cannot rationally intend to  $\varphi$  while knowing that one will not  $\varphi$ , one cannot rationally try to  $\varphi$  while knowing that one will not  $\varphi$ .

### §3 FROM METAPHYSICAL INQUIRY TO THE PSR

I will present two distinct, but related arguments for the claim that metaphysical inquiry commits us to the PSR.

### §3.1 The Argument from the Structure of Inquiry

According to our Intention-Commitment Thesis, when a subject rationally intends to  $\phi$ , she is committed to being able to  $\phi$ . Filling in this schema, when a subject rationally intends to explain a fact  $p$  (or equivalently, intends to inquire into  $p$ ) she is committed to  $p$ 's being explainable. Again, a commitment to  $p$ 's being explainable is not merely a commitment to there being some, or other, possible world in which  $p$  has an explanation: it is a commitment to  $p$ 's being explainable in *this* world. But  $p$  would not be explainable if it lacked an explanation. So a commitment to  $p$ 's being explainable rationally requires a commitment to  $p$ 's having an explanation. This gets us our first main premise:

- (1) When a subject rationally intends to explain a fact, she is thereby committed to it having an explanation.

With (1) in place, I move on to the second premise. Our default stance as inquirers—and thus our default commitment—must be that there are *no* facts one *cannot* rationally intend to explain. For any fact  $p$ , for it to be false that an arbitrary subject can rationally intend to explain  $p$ , it would have to be the case that either it is irrational for the subject to intend to explain  $p$ , or it is impossible for her to intend to explain  $p$ . The only way it could be irrational to intend to explain  $p$  is if the subject knew, or had sufficient justification for believing that  $p$  was brute (i.e. lacking a metaphysical explanation). But in order to have such knowledge (or justification), she would have had to rationally intend to explain  $p$ , and have failed to explain  $p$ .<sup>21</sup> One could instead try to argue that it is simply impossible to intend to explain  $p$ . But it is

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<sup>21</sup> One might argue that a given subject could have known by testimony that fact  $p$  was brute. But in that case a different subject—the subject from whom the testimonial knowledge is ultimately acquired—would have had

quite unclear how it could be *impossible* for an arbitrary subject to simply intend (rationally or otherwise) to explain an arbitrary fact  $p$ . This line of argument establishes our second premise:

(2) S is committed to every fact being such that someone can rationally intend to explain it.

While S is committed to every fact being such that someone *can* rationally intend to explain it, it is not the case that every fact is such that there *is* a subject who rationally intends to explain it (there are, for instance, facts that no one has yet discovered). So (2) is really the claim that S is committed to every fact being such that either someone rationally intends to explain it, or someone merely possibly rationally intends to explain it.

The third and final premise of my first argument concerns the nature of the practice of metaphysical inquiry. I have shown that by participating in the practice of metaphysical inquiry, a subject incurs a commitment to the existence of explanations for the facts she rationally intends to explain. The question I am now interested in is this: what other commitments does she incur in virtue of being a participant in the practice? I will argue that she is committed to the action-theoretic commitments of all other participants in the practice.

Consider the following *disanalogy* with the practice of belief. Let us say that a subject participates in this practice just in case she believes a proposition. When she believes that  $p$ , she is committed to the truth of  $p$ . This plausibly follows from the sort of attitude belief is: one cannot believe without taking one's belief to be true. Is the subject, in virtue of

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to rationally intend to explain  $p$ , and have failed. Either way, we get the conclusion that every fact is such that someone can rationally intend to explain it.

participating in the practice of belief, thereby also committed to  $q$  being true, where  $q$  is some proposition believed by some other (actual or merely possible) participant in the practice? The answer seems to be ‘obviously not’. Absent further conditions, the mere fact that the subject is a participant in the practice of belief does not commit her to sharing the commitments of other (actual or merely possible) participants. For the subject to be committed to  $q$ , she (at the very least) needs independent reason to trust the evidence that the other participant—or even herself at an earlier time—has for believing  $q$ .<sup>22</sup> It thus is not the case that merely participating in the practice of belief commits one to the belief-theoretic commitments of other participants.

The practice of metaphysical inquiry is *unlike* the practice of believing in that the mere fact that  $S$  is a participant in metaphysical inquiry does commit her to sharing commitments of other participants. The crucial difference between the two practices seems to be this: the two practices differ in whether the commitments incurred by their participants are incurred in virtue of the *structure* of the practice. A commitment is incurred in virtue of the structure of a practice just in case it is generated by what I’ll call a ‘neutral’ feature. A feature is ‘neutral’ (relative to a practice) just in case participants in the practice cannot possess conflicting tokens of the feature-type to which the feature belongs. ‘Conflict’ is a term of art in this context. Importantly, it isn’t sufficient for conflict that one participant possesses a feature and another lacks it. As a result, the feature of intending to perform an action is not in conflict with the feature of not having that intention, but it is in conflict with

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<sup>22</sup> This ‘independent reason’ is the same sort of reason we would require in order to think that someone’s testimony was trustworthy. See for instance Dogramaci (2015) for a view on which one can safely trust another’s commitments when our epistemic rules are coordinated.

having an intention to perform some incompatible action. By contrast, believing  $p$  and believing not- $p$  are in conflict, and so is having evidence for  $p$  and evidence for not- $p$ .

Such conflict is *impossible* for participants of metaphysical inquiry. The commitment-generating feature is in this case a participant's rational intention to explain a particular fact. But because all facts—in virtue of being *facts*—are mutually consistent, it is not possible to have conflicting intentions in the way one might have conflicting beliefs (e.g.  $S$  believes  $p$  yet  $S_1$  believes not- $p$ ). Thus, a subject's commitment to the existence of an explanation for every fact she rationally intends to explain is a commitment that 'doesn't care' about *who* does the inquiring: the commitment falls out from the structure of metaphysical inquiry. Hence when an actual (or possible) subject rationally intends to explain a fact  $p$ , no difference between my situation (as an inquirer) and hers can protect me from incurring the same commitment she incurs in virtue of her intention to explain  $p$  (assuming that we both share the same domain of facts).<sup>23</sup> So the subject and I both incur commitment to  $p$  having an explanation: in her case, this commitment comes from her intending to explain  $p$ ; in my case, the commitment derives from (a) the subject's being another participant in the practice of inquiry and (b) her rationally intending to explain  $p$ . We now have our third and final premise:

- (3)  $S$  is committed to the action-theoretic commitments of those inquirers who rationally intend (or merely possibly rationally intend) to explain facts.

At this point one might be tempted to object: suppose that  $S$  rationally intends to explain  $p$ , but I have antecedent reason for believing that  $\sim p$ ; wouldn't it follow that I am not

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<sup>23</sup> My (putative) commitment to  $p$ 's 'bruteness' or inexplicability cannot protect me from incurring the commitment because the commitment is incurred in virtue of the structure of inquiry. One may of course have inconsistent commitments without falling victim to irrationality (if for example, one isn't aware of one of the inconsistent commitments).

permitted (epistemically speaking) to commit myself to there being an explanation for  $p$ ? This objection does not succeed, but its failure does bring out an important aspect of my argument. My argument does not require that we know *which* are the facts; we incur commitment to a given fact having an explanation because some inquirer rationally intends to inquire into the fact, even if we (mistakenly) think that the fact in question is not a fact at all. As a result, while it follows from (1)–(3) that we are committed in virtue of participating in metaphysical inquiry to every fact having an explanation, we do not fall victim to rational incoherence if we (mistakenly) believe, of some fact, that it is not a fact, or that it is a brute fact. Moreover, since only facts can be inquired into, inquirers do not risk inquiring into inconsistent facts (on the assumption that reality is coherent).<sup>24</sup>

Putting our premises together, we can construct an argument for the claim that participating in metaphysical inquiry commits a subject  $S$  to the claim that every fact has an explanation, i.e. the PSR. Given that  $S$  rationally intends to explain some fact  $p$ , we get the following argument:

- (1) When a subject rationally intends to explain a fact, she is thereby committed to it having an explanation. [From Intention-Commitment Thesis]
- (2)  $S$  is committed to every fact being such that someone can rationally intend to explain it.
- (3)  $S$  is committed to the action-theoretic commitments of those inquirers who rationally intend (or merely possibly rationally intend) to explain facts. [From the structure of inquiry]

Therefore,

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<sup>24</sup> We may of course (unbeknownst to us) *think* that we are inquiring into facts, but thinking so doesn't make it so. Just like knowing is factive, such that knowing that  $p$  entails that  $p$  is true, inquiry requires that the object of inquiry be a fact.

(4) S is committed to there being an explanation for any fact that someone could rationally intend to explain. [From (1) and (3)]

Therefore,

(5) S is committed to every fact having an explanation. [From (2) and (4)]

This argument establishes that if an arbitrary subject rationally intends to explain some fact, she thereby incurs a commitment to every fact having an explanation (i.e. the PSR).

At this juncture, one might raise the following objection. Many philosophers are committed to brute facts. Indeed, any philosopher who accepts fundamental facts, where a fundamental fact is one that lacks metaphysical explanation, is committed to brute facts. Yet, these philosophers do rationally intend to explain facts, and so are participants in the practice of metaphysical inquiry. But according to my argument, participation in metaphysical inquiry commits one to the PSR. So it would seem these philosophers are irrational; but surely that is the wrong result!

My response is as follows. Having a commitment does not require awareness that one has that commitment, so it is quite possible for philosophers to have inconsistent commitments, while remaining rational. After all, we are not logically omniscient. But suppose that the argument of the present chapter succeeds and the reader becomes aware of her commitment to the PSR (her commitment to brute facts notwithstanding). She should then reevaluate her commitments in light of the evidence. What my argument has done is show that a commitment to the PSR is indispensable to the practice of metaphysical inquiry, and so the burden of showing how metaphysical inquiry might proceed without such a commitment lies with the opponents of a commitment to the PSR. In particular, it will not be enough for such an opponent either to merely stipulate brute facts, or to insist that we

have searched for and failed to find an explanation for a particular fact (since one can always search harder).

### §3.2 The Argument from the Scope of Inquiry

My second argument for the claim that metaphysical inquiry entails a commitment to the PSR is closely related to the first. The first argument turned on a claim about when an inquirer inherits the commitments of other inquirers. By contrast, my second argument will exploit a claim about the scope of inquiry. The argument begins with the Intention-Commitment Thesis:

(1) If a subject rationally intends to  $\phi$ , she is committed to being able to  $\phi$ .

Earlier, I claimed that a subject participates in the practice of metaphysical inquiry just in case she rationally intends to explain some fact. Does it follow from a rational intention to explain a fact  $p$  that a subject also rationally intends to participate in metaphysical inquiry? I say ‘yes’. Consider the following analogy. When I intend to make a particular chess move—say, move a bishop diagonally—I thereby also intend to play chess. If I simply intended to move the bishop diagonally without the intention of playing chess I would not count as having intended to make a *chess move*. Likewise, when I rationally intend to explain fact  $p$ , I also intend to participate in the practice whose participants seek metaphysical explanations. But this latter practice is just the practice I have been calling ‘metaphysical inquiry’.

Someone might try to object at this point that an intention to  $\phi$  gives rise to an opaque context. I could for instance intend to find Superman without intending to find Clark Kent, even though to find Superman just is to find Clark Kent. Couldn’t I likewise intend to explain  $p$  without also intending to participate in metaphysical inquiry? I think not.

In order for a subject to rationally intend to explain  $p$  without rationally intending to participate in metaphysical inquiry, she would have to be in a state in which she was unaware that she was intending to explain  $p$ . But it is difficult to see how one could lack awareness of the content of one's own intentions in this way. Going back to the analogy with chess: intending to make a chess move seems to require awareness that one is intending to make a *chess* move. Likewise, intending to explain fact  $p$  requires awareness that one is intending to *explain*  $p$ . One might (accidentally) discover the grounds for a fact  $p$ , but in that case, one would not count as having intended to explain  $p$ . So while intentions do in general give rise to opaque contexts, opacity does not undermine my claim that rationally intending to explain a fact requires rationally intending to participate in the practice whose practitioners seek explanations. We thus have our second premise:

(2) When S rationally intends to explain a fact  $p$ , she also rationally intends to participate in the practice whose practitioners seek explanations (i.e. metaphysical inquiry).

From (1) it follows that:

(3) If S rationally intends to participate in metaphysical inquiry, S is committed to being able to participate in metaphysical inquiry.

What I am ultimately after is an argument for the claim that when a subject rationally intends to inquire into a fact  $p$ , she is rationally required to be committed to the explainability of all facts (i.e. she is rationally required to be committed to the PSR, since a fact can be explained only if it has a metaphysical explanation). My argument for this claim requires one last premise:

(4) S's commitment to being able to participate in metaphysical inquiry rationally requires a commitment to the explainability of all facts.

To get an initial feel for why (4) is true, consider once again the analogy to chess. A commitment to being able to play chess rationally requires a commitment to the rules for maneuvering each of the six different kinds of pieces. Now even if the only moves I ever make involve moving the bishop diagonally, a commitment merely to the rules for maneuvering bishops is not alone sufficient for a commitment to being able to play chess. Of course, these remarks about chess are only suggestive. In what follows I argue in detail for (4).

Suppose for *reductio* that a subject intends to explain  $p$ , and so is engaged in metaphysical inquiry, but is not thereby committed to the explainability of *all* facts. Perhaps she is committed only to the explainability of a proper subset of all facts (even perhaps a subset that consists only of  $p$ ). But if she is not committed to the explainability of all facts, then she is either agnostic with respect to whether some facts are explainable, or has reason to believe that some facts are not explainable.

Let us first deal with the case where the subject is agnostic with respect to whether some facts are explainable. In this scenario, the subject is committed to the explainability of the fact she intends to explain (fact  $p$ ), but is agnostic about the explainability of a class of facts that does not contain  $p$  as a member but contains  $q$ . We might then ask: what reason does she have to be agnostic about  $q$  but *not* about  $p$ ? Perhaps she has antecedent reason to believe that  $p$  is explainable, because she (or another participant engaged in metaphysical inquiry) has already explained facts of the *type* that  $p$  belongs to, yet the subject lacks such a

reason in the case of  $q$ .<sup>25</sup> Or perhaps she has antecedent reason to believe that facts like  $q$  may *not* be explainable, but there's no such reason in the case of facts like  $p$ .<sup>26</sup> But notice that whatever reason the subject might have for being agnostic about  $q$  (but not about  $p$ ), possession of this reason requires that she have some evidence that speaks to whether facts like  $p$  (or facts like  $q$ ) are explainable. But how might such evidence be acquired?

She might acquire this evidence either by actually inquiring, or through some other means. I doubt that such alternative means are available, given our broad characterization of metaphysical inquiry. Likely our only—and certainly our best—source of evidence for a fact's being explainable is a history of inquiry into that fact or others like it.<sup>27</sup> Now if the subject does acquire this evidence by actually inquiring, evidence that a fact is unexplainable could consist in facts about whether other facts like  $p$ , or other facts like  $q$  have been successfully inquired into, or have been resistant to successful inquiry. But being in a position to acquire such evidence in the first place requires that the scope of the practice of metaphysical inquiry not be restricted to a subset of facts, but encompass all facts: the

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<sup>25</sup> If for instance we have evidence for believing that conjunctive facts are generally explained by their conjuncts, then for any conjunctive fact  $p$ , I might have antecedent reason to believe that it too is explained.

<sup>26</sup> One may for instance have evidence for thinking that identity facts are not generally explainable, and so have antecedent reason to think that a particular identity fact one comes across is not explainable.

<sup>27</sup> One way to respond to my skepticism would be to isolate an uncontroversial class of facts whose status as immune to metaphysical explanation follows from a proper characterization of the class. The best contender seems to be stipulated facts, such as the fact that the length of a meter is the length of stick  $M$  (where  $M$  is some particular stick). Such stipulative facts may appear to be metaphysically unexplained almost by definition, for they are brought about by stipulation: they are determined by the content of a stipulated statement (e.g. '*that stick is to be the measure of a meter*'). To be explained—one might think—the obtaining of a fact has to consist in other facts. A fact that obtains because of a stipulated statement may seem to not 'depend upon the world', for it is not determined by any fact. Yet I ultimately remain unconvinced by this sort of response. Given the sense of dependence that is relevant to metaphysical explanation, I'm confident that stipulated facts *are* explained. For these facts *do* consist in other facts: they consist in facts about the mental states and actions of a group of people. So these facts are not such that we can know (without engaging in inquiry) that they are unexplained.

possibility of acquiring such evidence presupposes a commitment to the explainability of *all* facts. So it cannot be the case that an arbitrary subject is, in virtue of participating in metaphysical inquiry, committed to the explainability of *p* and yet is also agnostic about the explainability of *q*.

My response to the possibility of a case where S is committed to the unexplainability of a class of facts is similar to my response to the agnosticism case. The best—and likely the only—source of evidence for the claim that there is a class of unexplainable facts is a history of failed instances of inquiry. So such facts must have once figured as objects of metaphysical inquiry. And once again, being in a position to acquire such evidence in the first place requires that the scope of the practice of metaphysical inquiry not be restricted to a subset of facts, but encompass all facts. So it cannot be the case that the subject, in virtue of participating in metaphysical inquiry, is committed to the explainability of *p* and yet is also committed to unexplainability of *q*.

I thus conclude that the commitment to being able to participate in metaphysical inquiry rationally requires a commitment to the explainability of *all* facts, which is just (4). Here is my second argument stated in full:

- (1) If a subject rationally intends to  $\phi$ , she is committed to being able to  $\phi$ . [Intention-Commitment Thesis]
- (2) When S rationally intends to explain a fact *p*, she also rationally intends to participate in the practice whose practitioners seek explanations (i.e. metaphysical inquiry).
- (3) If S rationally intends to participate in metaphysical inquiry, S is committed to being able to participate in metaphysical inquiry. [From (1)]
- (4) S's commitment to being able to participate in metaphysical inquiry rationally requires a commitment to the explainability of all facts.

Therefore,

- (5) When S rationally intends to explain a fact  $p$ , she is rationally required to be committed to the explainability of all facts. [From (2), (3) and (4)]

Since a commitment to the explainability of all facts rationally requires a commitment to all facts having explanations, we get the result that rationally intending to explain a fact rationally requires a commitment to the PSR. Of course, we are talking about subjects who are *rationally* intending to explain facts, and the commitments of these subjects will simply include any other rationally required commitment. So my second argument licenses the same conclusion reached in the first argument, namely that when a subject rationally intends to explain a fact, she incurs commitment to the PSR.

#### §4 THE OBLIGATION TO METAPHYSICALLY INQUIRE

In classical indispensability arguments, we ought to be committed to the ontological commitments of a theory only if we have independent reason to think that the commitment-conferring theory is true. Thus, not just any theory can confer commitment via an indispensability argument: only the *best* theories can. Similarly, we ought to be committed to the commitments of a practice only if we have independent reason to adopt the practice.<sup>28</sup>

What reason do we have to pursue the practice of metaphysical inquiry? A practice may be obligation-conferring because of its consequences.<sup>29</sup> These consequences may be moral (perhaps the practice relieves suffering, or results in a more just society) but they may also be epistemic. It may be that the practice results in gains in knowledge, or understanding.

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<sup>28</sup> For instance, the practice of singing songs of praise to Zeus seems to require an ontological commitment to Zeus, but it is unclear whether we have independent reason to adopt such a practice, and so unclear whether there is any obligation to participate in such a practice.

<sup>29</sup> Cf. Sosa (1980)

Adoption of the practice would then be *epistemically* required just in case the practice tends to produce certain epistemic consequences. In the case of metaphysical inquiry, these consequences take the form of metaphysical understanding.

In this section I argue that our obligation to participate in metaphysical inquiry follows from two claims: (1) The practice of metaphysical inquiry is our current means to metaphysical understanding; (2) Metaphysical understanding is rationally non-optional for us. If true, these two claims jointly entail that we ought to participate in metaphysical inquiry.

#### §4.1 Inquiry or Schminquiry?

That metaphysical inquiry is *a* means to metaphysical understanding follows from my characterization of the practice: metaphysical inquiry *just is* the practice of seeking metaphysical explanations. Some may object that metaphysical inquiry is not our *only* means to metaphysical understanding. Recall that metaphysical inquiry is the practice whose participants seek to explain *p*, where *p* is an arbitrary fact. Call ‘schminquiry’ the practice whose participants seek to explain *p*, where *p* is an arbitrary *explainable* fact. If every apparent instance of metaphysical inquiry is really an instance of schminquiry, an inquiring subject need only be committed to the explainability of those facts that are explainable. But this commitment does not get us a commitment to the PSR: it gets us only a commitment to the existence of explanations for those facts that *have* explanations. It is thus crucial for my purposes that we engage in metaphysical inquiry, rather than schminquiry.

Why think that when seeking metaphysical explanations we are engaged in metaphysical inquiry, rather than schminquiry? It is because schminquiry is an unintelligible practice. To see why, suppose that S intends to explain a fact *p*. If *p* lacks an explanation,

then (unbeknownst to S) S would not count as participating in the practice of schminquiry (one only counts as participating in schminquiry if one seeks explanations for facts that *have* explanations). But for most facts, we discover *that* they have explanations by discovering their explanations.<sup>30</sup> So it would seem that we cannot non-luckily choose to schminquire into a fact, unless we have already successfully inquired into it, and thus know that it has an explanation. Not being able to non-luckily engage in a practice is problematic given that participation in a practice should not be accidental. But if we have already successfully inquired into the fact, then schminquiring into it is rendered unintelligible: a subject can rationally schminquire into a fact *p* only if she doesn't already know what explains *p*. Once she knows what explains *p* (by rationally inquiring into the fact), then one can't continue to seek an explanation for *p*, and so can't coherently schminquire into *p*.<sup>31</sup> I thus conclude that when seeking explanations, it cannot be the case that we are engaged in schminquiry rather than inquiry.

At this stage some may try to push a cousin of the original objection. They will argue that when a practitioner seeks to explain a fact, she is engaged in schminquiry\*. Call 'schminquiry\*' the practice that seeks to determine what, if anything, is fundamental (i.e. metaphysically unexplained, or not apt for being explained) and what is explained by the

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<sup>30</sup> There are a few exceptions to this general rule. If disjunctions are always grounded in at least one true disjunct, and conjunctions always grounded in their conjuncts, then we can plausibly know that disjunctions and conjunctions have explanations before we have discovered these explanations. But most types of facts do not fall into this category. One might argue that the category of types of facts that are such that we can know that they are explained without knowing what explains them is larger. If, for instance, one holds that facts about composite entities are explained by facts about simple entities, then one might know that a fact is explained without knowing what explains it. But I do not find such cases convincing, for in general, we take a fact to be a fact about a composite thing *because* we know that it is explained by facts about simples.

<sup>31</sup> One might raise a related worry that we need prior grounds for figuring out whether something is a fact or not before we can rationally inquire into it. This may be right, but knowing that something is a fact or a non-fact does not require knowing what explains it, and so a similar paradoxical situation does not arise with respect to inquiry.

fundamental. But in seeking to determine if a fact  $p$  is fundamental, one would first have to seek to explain, and thus inquire, into  $p$ . One couldn't seek to determine what facts are explained by which fundamental facts unless one had already determined which facts were fundamental. And as I argued in the previous section, the most promising way to determine what is fundamental (i.e. which facts are unexplained) is by seeking to explain all facts.<sup>32</sup>

A last ditch objection remains: an opponent might insist that metaphysical understanding can be achieved not only by seeking to explain facts, but also by merely *trying* to explain them. If one is merely trying to explain a fact  $p$ , then perhaps one is not committed to  $p$ 's being explainable. However, it is difficult to see how such a view could be sustained. Given the Trying-Commitment Thesis established in §2, even a subject's attempt to explain a fact would be irrational if she were not committed to the fact's being explainable. The commitment to the fact's being explainable is of course compatible with very low confidence in the claim that the fact does have an explanation. So it would seem that a commitment to the PSR cannot be avoided by re-characterizing metaphysical inquiry as the practice of *trying* to seek explanations, as opposed to the practice of intending to seek explanations.

Given these responses, the burden of showing that these alternative ways of characterizing metaphysical inquiry do not just collapse into my characterization, and so do not entail a commitment to the PSR, lies with those who would oppose my thesis.

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<sup>32</sup> One might argue that one could seek to explain a fact while simultaneously seeking to determine whether it is fundamental. If this is right, then perhaps seeking to explain a fact  $p$  is not a precondition for determining whether  $p$  is fundamental. I grant that one might find out whether the fact has an explanation *by* searching for its explanation, and in this sense, the two activities can be carried out simultaneously. But searching for an explanation is still the *epistemically* prior activity, which is all my argument requires.

## §4.2 The Value of Metaphysical Inquiry

It remains only to show that metaphysical inquiry is rationally non-optional for us. In his *Metaphysics* (1:1) Aristotle claims ‘All men by nature desire to know’.<sup>33</sup> If our desire for knowledge follows from our nature, then it would seem that the pursuit of knowledge is rationally non-optional for us. I will argue that if the pursuit of knowledge enjoys such a status, so does the pursuit of understanding. While there has recently been a surge of interest in the distinctive epistemic status and value of understanding, my focus will be on metaphysical understanding in particular.

It seems plausible that the pursuit of knowledge is intrinsically valuable, and this is because the pursuit of truth seems intrinsically valuable. If we’re right about the value of truth, it is difficult to see why the pursuit of metaphysical understanding would not be just as intrinsically valuable: in every instance of metaphysical understanding, we acquire the truth that a fact is explained by another fact (or facts).<sup>34</sup>

Intrinsic value aside, the pursuit of knowledge is also instrumentally valuable. Thus Williamson (2000, p. 101) argues for the instrumental value of knowledge over mere true belief when he says that “given rational sensitivity to new evidence, present knowledge makes future true belief more likely than mere present true belief does”.<sup>35</sup> But we might easily claim something similar about understanding: the pursuit of understanding is valuable

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<sup>33</sup> If humans have a desire to know by nature, and if such a desire is rational (i.e. issued by the rational part of the soul), then it would seem that on Aristotle’s view pursuit of knowledge is rationally non-optional for us. A full defense of this claim, however, goes beyond the scope of this chapter.

<sup>34</sup> Cf. Hills (2015). Hills argues that if truth is valuable, understanding is twice as valuable, for in understanding we acquire two truths.

<sup>35</sup> There’s some controversy over whether knowledge is more valuable than justified true belief or mere true belief, but I’ll put it aside as the reasons for doubting that it’s *knowledge* (rather than truth) that is valuable don’t carry over to the case of understanding.

because it puts us in a position to acquire future true beliefs. Suppose for instance that the fact that there's a conference occurring here is explained by the fact that there is a list of speakers scheduled to talk, an audience asking questions, etc. If I were to know what explains the fact that there is a conference taking place here, I would be in a position to form true beliefs about conferences every time I am confronted with a collection of facts similar in kind to the one that jointly explains the fact that there's a conference occurring here.

Metaphysical understanding also puts us in a position to understand a greater range of facts. Most assume that metaphysical explanation obeys a systematicity constraint: facts of a kind ought to be explained roughly in the same sort of way.<sup>36</sup> Thus (for example) all conjunctions are explained by their conjuncts, and all disjunctions are explained by their true disjuncts. If the systematicity constraint generally holds, then understanding one fact puts us in a position to understand other facts of the same (relevant) kind. Thus, just as knowledge (on Williamson's view) makes future true belief more likely than mere true belief, understanding would seem to make future understanding more likely than mere knowledge.

One might object that any value possessed by understanding is subsumed by the value we place on knowing the truth. If right, this objection would threaten the claim that that pursuit of understanding is *distinctively* valuable, and thus non-optional for us. The pursuit of understanding needs to be *distinctively* non-optional in order to commit us to the practice of metaphysical inquiry.

In reply, I suggest that the pursuit of understanding *does* seem to be *distinctively* valuable. First, the pursuit of understanding seems to be even *more* intrinsically valuable than

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<sup>36</sup> Rosen calls a constraint in this neighborhood 'Formality' (Cf. Rosen 2010, p. 131).

the mere pursuit of truth, for it involves grasping something of the relationship between truths, and thus grasping something about how the world is structured. If truths are intrinsically valuable, then surely knowing how they relate to one another is also intrinsically valuable.<sup>37</sup> Second, the fact that metaphysical understanding puts us in a position to know and understand other truths possesses a value that would remain *even if* it were to turn out that acquiring knowledge of truths for its own sake is not valuable.<sup>38</sup> Acquiring knowledge of truths might be valuable only when those truths are relevant to us; but surely the relevant truths will always include those understanding puts us in a position to know. These considerations support my claim that engaging in the practice of metaphysical inquiry is rationally non-optional. If I am right that engaging in the practice of metaphysical inquiry is our current means to metaphysical understanding, and that pursuing such understanding is rationally non-optional for us, then we ought to take on the commitments we incur from engaging in the practice. And I have argued that one such commitment is a commitment to the PSR.

## §5 BURDEN-SHIFTING AND THE PSR

My arguments effectively splice (and thus improve upon) two traditional arguments for a commitment to the PSR. The first takes the principle to be somehow self-evident. The second treats the PSR as a condition for the satisfaction of our primitive desire to understand the world. My arguments share with the first a focus on the incoherence (in my

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<sup>37</sup> See Hills (2015, pp. 18-19) for a related discussion of the distinctive, intrinsic value of understanding.

<sup>38</sup> Consider for instance the objection in Sosa (2001) to the claim that the knowledge of truths, for its own sake, is our prime epistemic goal. If acquiring knowledge of truths were our prime epistemic goal, it would be satisfied even by acquiring knowledge of a large number of trivial truths, such as the phone numbers of people listed in a phonebook.

case practical incoherence) that attends a denial of the PSR; they share with the second an appeal to the satisfaction conditions of one of our desires or goals (namely metaphysical understanding).<sup>39</sup>

An important aspect of the arguments I have presented is that they establish our commitment to the PSR in its full generality: no distinction is made between contingent and necessary facts. So metaphysical inquiry commits us to the principle that every fact—whether contingent or necessary—has an explanation. My arguments also remain neutral on the question of whether the project of metaphysical inquiry involves purely *a priori* investigation, or also involves investigation that is *a posteriori*. Mathematical inquiry seems to be an instance of metaphysical inquiry wherein the investigation is purely *a priori*, but other cases are less clear. It seems plausible that the understanding of scientific facts (for instance) requires *a posteriori* investigation.

At this point some may raise a skeptical worry about metaphysical inquiry. They may object that all I have established is that we *need* it to be case that every fact has an explanation. But it could turn out that metaphysical inquiry is in fact *impossible* and that we are instead simply laboring under a grand illusion. On such a view, it only seems to us that we sometimes engage in metaphysical inquiry, but we in fact *never* do. While such radical skepticism may conceivably be correct, the project of this chapter has not been to convince the radical skeptic. My target audience has been those who think that from time to time we *do* engage in metaphysical inquiry. These are thinkers who—like most of us—are not

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<sup>39</sup> See Pruss (2006, Chs. 11 & 14) for clear statements of the two traditional arguments.

skeptics about the philosophical project. I have argued that they ought to be committed to the PSR.

I close the chapter with a brief discussion of how my arguments relate to a prominent argument for the PSR due to Della Rocca (2010). Della Rocca observes that there are uncontroversial examples of facts for which it is appropriate to demand an explanation. He argues that we frequently appeal to ‘explicability arguments’—arguments for the non-obtaining of certain states of affairs on the ground that such states of affairs would be inexplicable. For instance, if we place equal weights on either side of a scale, we infer that one side will not hang down (assuming there are no defects in the scale). If one side were to hang down past the other, we would have an inexplicable state of affairs. Likewise, why think that neither lefty nor righty—fission offshoots in Parfit’s thought experiment—are identical to the original person? Because the obtaining of the state of affairs in which the original person was identical to lefty rather than righty (or vice versa) would be inexplicable.

Della Rocca argues that accepting some inexplicability arguments puts pressure on one to accept an explicability argument concerning existence facts (facts of the form *such-and-such state of affairs exists or obtains*).<sup>40</sup> But if all existence facts demand explanation, the PSR is true. Since explicability arguments seem appropriate in many cases, those who deny the PSR must provide a principled reason for why they are not appropriate in the case of existence facts. Della Rocca suggests that the challenge to provide such a principled reason cannot be met by opponents of the PSR. This sort of argument aims to shift the burden of proof from proponents of the PSR over to those who reject it.

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<sup>40</sup> Cf. Della Rocca (2010, p. 6).

One way out for someone who rejects the PSR would be to reject all explicability arguments. And this is where my argument supplements Della Rocca's: I have shown that abandoning all explicability arguments is not a way out of being committed to the PSR. One incurs this commitment as long as one participates in metaphysical inquiry. What Della Rocca's argument does is raise the bar for when one can justifiably be committed to a fact's being 'brute'. For if his argument succeeds, an opponent of the PSR who wishes to posit a 'brute' fact would have to draw a principled distinction between the explicability arguments one accepts, and explicability arguments for existence facts more generally.

Faced with my arguments, an opponent of the PSR would have to show either that a commitment to the PSR is not in fact indispensable to the practice of metaphysical inquiry, or that there is no obligation to participate in metaphysical inquiry. Absent such arguments, my claim—that we ought to be committed to the PSR—stands even if an opponent takes the drastic steps necessary to avoid the force of Della Rocca's argument.

## Chapter 2: The Contingency of Explanation

We live in an age when unnecessary  
things are our only necessities  
*Oscar Wilde*

In this chapter I argue against a widely accepted principle governing metaphysical explanation, where a ‘metaphysical explanation’ of some fact specifies what makes it the case that the fact obtains. The principle—call it ‘Necessitation’—holds that if one fact explains another, then necessarily, if the first fact obtains, so does the second. I am not the first to argue against Necessitation as a principle that governs metaphysical explanation.<sup>1</sup> Like most formal features that are taken to govern metaphysical explanation, Necessitation has had its detractors. But my argument for rejecting Necessitation differs in an important way from those that have come before: I will show that Necessitation fails in a way that renders it possible for a necessary fact to explain, on its own, a contingent fact.

The thesis that a necessary fact cannot, on its own, explain a contingent fact underwrites a central and highly influential argument against the Principle of Sufficient Reason (henceforth, ‘PSR’), a principle that says that every fact has an explanation. According to the argument, the PSR entails that the world could not have been otherwise—a consequence that is taken to be unacceptable.<sup>2</sup>

The goal of this chapter is two-fold. I will first argue that the thesis necessary facts cannot, on their own, explain contingent facts is false (henceforth, when I speak of necessary

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<sup>1</sup> See Leuenberger (2014) and Skiles (2015).

<sup>2</sup> See for instance, van Inwagen (2009, p. 149-150). As van Inwagen states, “... a careful examination of the Principle shows that it has a consequence most people would have a very hard time accepting: that all true propositions are necessarily true.” (p.150).

facts explaining contingent facts, I will take the ‘on their own’ qualification to be implied). Rejecting this thesis entails the rejection of Necessitation, which in turn entails that metaphysical explanation is contingent. Second, I will show that insofar as a central argument against the PSR rests upon the claim that no necessary fact can explain a contingent one, that argument fails.

I proceed as follows. In §1, I discuss both the commitment to Necessitation as a principle that governs explanation, and the central notion of a ‘metaphysical explanation’. In §2, I show that if a coherent and well-established view in the metaphysics of time is true, a principle analogous to Necessitation (one that concerns eternity rather than necessity) is false, and given a further assumption, Necessitation is also false. In §3, I argue that if a modal view structurally parallel to the one discussed in §2 is true, then Necessitation is false. In §4, I will show that we should endorse the consequents of both conditional claims argued for in §2 and §3, even if we have reason to not endorse the antecedents. In §5 I show how the way in which Necessitation fails rescues the PSR from the objection that it entails that the world could not have been otherwise. Finally, in §6, I address the worry that rejecting Necessitation is in tension with a commitment to the PSR.

## **§1 PRELIMINARIES**

### **§1.1 What is metaphysical explanation?**

Consider the fact that objects persist over time. In virtue of what do they persist? According to one candidate answer this question—the four-dimensionalist answer—an object *a* persists over time in virtue of the fact that objects are collections of temporal stages, and the fact that a temporal stage of *a* at time  $t_1$  is appropriately related to the temporal stage of *a* at time

$t_2$ . This latter fact *metaphysically explains* our original fact by being that in virtue of which that fact obtains.

Metaphysical explanation, along with the related notion of ‘ground’, has taken center stage in contemporary metaphysics. But metaphysical explanation (or ‘in-virtue-of explanation’) is hardly new to philosophy: demand for such an explanation is present in every ‘in virtue of what’ question. At the start of this chapter, I characterized ‘metaphysical explanation’ as the sort of explanation that tells us what makes it the case that a certain fact obtains. This sort of explanation is generally taken to transcend particular human interests, perspectives or capacities. While the term ‘explanation’ has cognitive connotations, suggesting that there could be no explanation if there were no agents doing any explaining, ‘metaphysical explanation’ is a term of art. It applies to what an ideal subject—someone who knew all the facts and the relations that obtained between them—would be in a position to explain.<sup>3</sup>

For ease of exposition, I will speak as if metaphysical explanation is a relation that holds between those facts that serve as *explanans* and *explanandum*.<sup>4</sup> Instead of ‘a subject who

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<sup>3</sup> This way of characterizing metaphysical explanation renders it continuous with the sort of explanation that Leibniz had in mind in his formulation of the PSR. For instance, he says:

So far we have just spoken as simple physicists; now we must rise to metaphysics, by making use of the great principle, little used, commonly, that nothing takes place without sufficient reason, that is, that nothing happens without it being possible for someone who knows enough things to give a reason sufficient to determine why it is so and not otherwise. (Leibniz 1989a, p. 209)

Leibniz’s statement of the principle implies that a “sufficient reason” is a reason that “someone who knows enough things” could in principle provide. Spinoza too seems to be committed to the claim that a ‘perfect intellect’ could explain everything. Cf. Lin (forthcoming, p. 1).

<sup>4</sup> Compare Strawson: “We sometimes presume, or are said to presume, that causality is a natural relation which holds in the natural world between particular events or circumstances, just as the relation of temporal succession does or that of spatial proximity. We also, and rightly, associate causality with explanation. But if causality is a relation which holds in the natural world, explanation is a different matter. People explain things to themselves or others and their doing so is something that happens in nature. But we also speak of one thing

knows all facts and the dependence relations that hold between them could metaphysically explain a fact [q] by reference to a fact [p], I will simply say '[p] metaphysically explains [q]'. Following notation introduced by Rosen (2010), '[p]' is a name for the fact that p, where 'p' expresses the proposition that p.<sup>5</sup> I will follow this convention throughout the chapter. I remain neutral as to which relations, and how many relations, underwrite metaphysical explanation, or indeed whether any 'worldly' relations underwrite metaphysical explanation. Some insist that a *single* metaphysical dependence relation ('Grounding', with a big 'G'), with a unified set of formal features, serves as the worldly correlate of metaphysical explanation.<sup>6</sup> Some of these theorists argue that Grounding *just is*, rather than underwrites, metaphysical explanation.<sup>7</sup> Opponents of Grounding argue that no single metaphysical dependence relation can play this role, and instead deploy a (formally and substantively) diverse set of metaphysical dependence relations ('grounding relations', with a small 'g').<sup>8</sup>

Many philosophers think that there is a sharp distinction between metaphysical and causal explanation, and characterize metaphysical explanation as 'non-causal explanation'.<sup>9</sup>

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explaining, or being the explanation of, another thing, as if explaining was a relation between the things. And so it is. But it is not a natural relation in the sense in which we perhaps think of causality as a natural relation. It is an intellectual or rational or intensional relation." (Strawson 1992, p. 109) A similar attitude seems to be warranted in the case of metaphysical explanation: we may speak as though metaphysical explanation is a relation between facts (understood to be worldly entities), but it is not a "natural" relation, in Strawson's sense.

<sup>5</sup> Nothing in this chapter depends on how we cash out the precise relationship between facts and propositions. We may, for example, think of facts as simply true propositions, or we may think of facts as truth-makers for propositions. On the assumption that truth-making is cashed out in terms of explanation (i.e. the fact that p explains why it is true that p), we can say that [p] explains [It is true that p].

<sup>6</sup> Cf. Schaffer (2012, 2016) and Audi (2012). Among the original proponents of Grounding are Fine (2001), Schaffer (2009), and Rosen (2010). Since these papers were published, proponents of Grounding have been divided over precisely which formal features the relation possesses.

<sup>7</sup> Cf. Fine (2001), Litland (2013), and Dasgupta (2014). Wilson (2016) argues that proponents of such views are guilty of conflating metaphysical explanation—a partly epistemic notion—with metaphysical dependence.

<sup>8</sup> Cf. Cf. Wilson (2014) and Koslicki (2015). Wilson argues against both the posited formal features of Grounding and the explanatory utility of positing a single relation to underwrite metaphysical explanation.

<sup>9</sup> Cf. Audi (2012), and Correia and Schnieder (2012).

Others treat metaphysical explanation and causal explanation as closely related.<sup>10</sup> I remain neutral about the precise relationship between causal and metaphysical explanation. All this chapter requires is that metaphysical explanation—whatever other forms of explanation it may or may not subsume—tells us what it is in virtue of which a given fact obtains.

Finally, metaphysical explanation is generally, though not universally, taken to be irreflexive, asymmetric, transitive, and necessitating. Insofar as my concern in this chapter is with Necessitation, the argument of this chapter remains neutral with respect to the other formal features of metaphysical explanation: it may be irreflexive (or not), transitive (or not), and so on. Henceforth, unless otherwise noted, I will use ‘explanation’ and ‘explains’ to mean *metaphysical explanation* and *metaphysically explains*, respectively.

## §1.2 The Commitment to Necessitation

According to Necessitation, if one fact explains another, then necessarily, if the first fact obtains, the second fact also obtains. Most philosophers accept that the *explanans* in such cases can consist in a collection of facts. Some philosophers also maintain that the *explanandum* can consist in a collection of facts.<sup>11</sup> This nuance, however, does not affect my argument, and so, for the sake of simplicity, let us state Necessitation as follows:

NECESSITATION: If  $[\phi]$  explains  $[\psi]$ , then necessarily, if  $[\phi]$  obtains then  $[\psi]$  obtains

The term ‘explains’, as it occurs in the principle, picks out full explanation, rather than merely partial explanation. Most philosophers take Necessitation to fail for partial

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<sup>10</sup> Schaffer (2016) argues for a close analogy between grounding and causation, Wilson (2017) treats grounding as a type of causation, and Bennett (forthcoming) holds that causation is a kind of building relation.

<sup>11</sup> Cf. Dasgupta (2014).

explanation. For example, most philosophers take conjunctive facts (e.g. [p and q]) to be explained by their conjuncts. But even if Necessitation holds, it does not hold for a partial explanation of a conjunctive fact: it is not necessarily the case that if [p] obtains, then [p and q] obtains.

A commitment to Necessitation as a principle that governs explanation is important not only to the contemporary notion of metaphysical explanation, but also to the traditional notion of explanation that was central to the rationalist metaphysics of Leibniz and Spinoza. On Spinoza's PSR, for example, a sufficient reason is a necessitating reason—or equivalently, for Spinoza—a necessitating cause:

From a given determinate cause the effect follows necessarily; and conversely, if there is no determinate cause, it is impossible for an effect to follow. (Spinoza, *Ethics* 1a3)<sup>12</sup>

In Spinoza's system, Necessitation is stated as an axiom—a foundational principle that doesn't require argument. The status of the contemporary commitment to Necessitation is less clear. Fine (2012) here characterizes Grounding (or metaphysical explanation) as a relation akin to logical consequence:

Ground is the relation of one truth holding *in virtue of* others. This relation is like that of consequence in that a necessary connection must hold between the relata if the relation is to obtain, but it differs from consequence in so far as it [requires] that there should also be an explanatory connection between the relata. (Fine 2012, p. 1)

But absent further argument, such a characterization simply begs the question against someone who rejects Necessitation as a principle governing metaphysical explanation.<sup>13</sup> One might, however, argue—and indeed, perhaps this is what Fine has in mind—that it's a

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<sup>12</sup> For Spinoza, the terms 'cause' and 'reason' are interchangeable. For example, when he states a variant of the Principle of Sufficient Reason in E1p11d2, he says "[F]or each thing there must be assigned a cause, *or* reason, both for its existence and for its nonexistence."

<sup>13</sup> It is also worth noting that there are accounts of logical consequence that are not necessitating. See, for example, Kaplan (1979).

definitional truth about metaphysical explanation that it is necessitating: that's just what metaphysical explanation *is*. If this is right, then it doesn't beg the question against someone who rejects Necessitation to say that metaphysical explanation is necessitating: that person simply means something else by 'metaphysical explanation'. Yet this dialectical move is available to someone like Fine only if what we are doing when providing a theory of metaphysical explanation is defining a relation and stipulating its features. If what we are doing instead is attempting to explicate the features of an already intuitively-grasped relation, then merely stipulating that metaphysical explanation is necessitating is impermissible. And the fact that metaphysical explanation is most often introduced by way of intuitive examples suggests that the task we are engaged in is the latter, not the former.

Rosen takes Necessitation to be characteristic of metaphysical explanation—as that which distinguishes metaphysical explanation from other types of explanation:

The facts that ground [p] together ensure as a matter of metaphysical necessity that [p] obtains. This is one respect in which the grounding relation differs from casual and other merely nomic forms of determination. On the present view, there is a difference between the materialist who holds that the facts about phenomenal consciousness are grounded in, and hence necessitated by, the neurophysiological facts that underlie them, and the dualist for whom the neural facts merely cause or generate conscious states according to contingent causal laws. (Rosen 2010, p. 118)

But again, it is unclear why Necessitation should be a feature that distinguishes metaphysical from other types of explanation or forms of determination. Metaphysical explanation can alternatively be characterized not by appeal to a formal feature of explanation, but by the sort of explanatory demand it satisfies. It is the sort of explanation that tells us what makes it the case that a certain fact obtains, or perhaps equivalently, what the obtaining of a certain

fact consists in.<sup>14</sup> For instance, dualists deny, while physicalists insist, that neurophysiological facts make it the case that facts about conscious states obtain. The question of how precisely metaphysical explanation ought to be characterized, and how exactly it differs from other forms of explanation, goes beyond the scope of this chapter. It may indeed turn out that metaphysical explanation is not something for which we can provide a characterization in terms of necessary and sufficient conditions. What I have hoped to suggest is that there are alternative ways—ways that do not involve appeal to a formal feature—of characterizing the notion of metaphysical explanation such that it tracks the intuitive notion.

In the next few sections, I will argue that we ought to reject Necessitation as a principle that governs metaphysical explanation. My general strategy will be as follows. I will first argue for the conditional claim that if a viable version of the B-theory of time is true, then a principle analogous to Necessitation—one that concerns time rather than modality—is false, and that given an additional assumption, it follows from this result that Necessitation is also false. I will then argue that a modal analogue of the B-theory of time also independently motivates the rejection of Necessitation.

## §2 EXPLAINING TEMPORARY FACTS

Let us begin with our commitment to contingent facts. A ‘contingent fact’ is one that obtains at some possible worlds (including ours), but not all of them; a ‘necessary fact’, by contrast, obtains at all possible worlds. While there are a few philosophers—so called

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<sup>14</sup> Cf. Fine (2001, 2012). This way of delineating metaphysical explanation is admittedly imprecise. One might, for example, distinguish between metaphysical and causal (or nomological) explanation, and argue that the ‘what-makes-it-the-case’ locution, or the ‘consists-in’ locution, can be used when demanding either type of explanation. But while this may be true as a matter of ordinary parlance, there is a long philosophical tradition of using these locutions in a certain way, i.e. to pick out distinctively metaphysical explanation.

‘necessitarians’—who would deny that any facts are contingent, for most of us the existence of contingent facts is a datum of commonsense.<sup>15</sup> We take it that I could have been doing something other than write this chapter. And that someone else could have won the election. And that it could have rained today.

The temporal analogue of a contingent fact is a temporary fact. A ‘temporary fact’ is one that obtains at some, but not all, times; by contrast, an ‘eternal fact’ obtains at all times. Like our commitment to contingent facts, our commitment to temporary facts is a datum of commonsense. After all, we think that change occurs, and genuine change seems to require that at least some facts are temporary (for example, it is raining right now, but it will stop raining in a few hours, and so it is not always raining).

Let  $\varphi$  be a variable that ranges over facts, and  $t$  be a variable that ranges over times. Following some of the literature in the philosophy of time, we may call facts of the form  $[\varphi \text{ at } t]$  ‘untensed facts’, and facts of the form  $[\varphi]$  ‘tensed facts’.<sup>16</sup> There is some awkwardness in talking about tensed *facts*: tense is a feature of language. But we can circumvent this problem in the following way. Let us say that a tensed fact is one that is standardly expressed by a tensed sentence (e.g. ‘It is raining’), whereas an untensed fact is one standardly expressed by an untensed sentence (e.g. ‘It is raining on Saturday, 21<sup>st</sup> January 2017’). A tensed sentence is

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<sup>15</sup> Contemporary necessitarians include Della Rocca (2010). Dasgupta (2016) also argues for (but does not endorse) a version of the PSR that entails that there are no contingent facts.

<sup>16</sup> This way of characterizing the form of an untensed fact is meant to be neutral with respect to two distinct ways of generating a tenseless fact: date analysis and token-reflexive analysis. On the date analysis strategy, the tense of the verb directly refers to a particular time. On the token-reflexive analysis strategy, the tense picks out a hidden description of a particular time (e.g. ‘the time of this utterance’). See Zimmerman (2005) for further discussion of these de-tensing strategies.

one whose truth-value can vary from one time to another, whereas an untensed sentence is one whose truth-value must remain the same at all times.

Now, call an ‘A-theorist’ someone who thinks that the temporal series (i.e. the series of fundamental facts arranged in order of time) consists in unanalyzable ‘A-theoretic’ properties had by entities and events. The A-theoretic properties are properties of being past, being present, and being future. An A-theoretic fact is then a fact that has as a constituent an A-theoretic property. Thus, according to the A-theorist, A-theoretic facts are fundamental. By contrast, call a ‘B-theorist’ someone who denies the A-theory: according to the B-theorist, there are no unanalyzable A-theoretic properties, since the A-theoretic properties in question get reduced to specific times that stand in the relations of being earlier than, simultaneous with, and later than to one another. B-theoretic facts are thus facts that are indexed to a time. For example, given that I am in Austin, the fact that I am in Austin is an A-theoretic fact, but the fact that I am in Austin on March 7, 2017 is a B-theoretic fact. Let us then characterize the B-theory of time as the view on which facts of the form [ $\varphi$  at  $t$ ] (as opposed to facts of form [ $\varphi$ ]) are fundamental.<sup>17</sup> The A-theory of time, by contrast, is then the view on which facts of the form [ $\varphi$ ] are fundamental.

Taking one type of fact to be fundamental is compatible with at least five distinct views about the other type of fact: facts of the first type may reduce to facts of the second type (‘reductionism’), or they may metaphysically depend on those facts without reducing to

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<sup>17</sup> Compare Miller and Cusbert (2017): “We take the A-theorist and the B-theorist to make competing claims about how temporal facts are grounded. According to B-theorists, there exists no A-series that is not reducible to B-relations (relations of earlier than, later than, and simultaneous with) and indexical facts.” (p. 7). See also Fine (2005a) for an argument for why the disagreement over aspectual facts (of which tensed facts are a subset) is best characterized in terms of whether such facts are part of ‘reality’ or not, where what is ‘real’ in the Finean sense closely maps onto what is fundamental (i.e. everything that is fundamental is part of reality), and not in terms of whether there exist any aspectual facts.

them (‘non-reductionism’), or they may emerge from those facts (‘emergentism’), they may be eliminated altogether (‘eliminativism’), or the two types of facts may be explanatorily on par, with neither type of fact prior to the other.<sup>18</sup> We can, for example, distinguish distinct versions of the B-theory: one on which there are no tensed facts at all; one on which tensed facts depend on untensed facts without reducing to them; one on which tensed facts emerge from untensed facts; one those on which tensed facts reduce to untensed facts. Reductionist and eliminativist versions of the B-theory are the most prominent in the literature. On eliminativist views, there are no A-theoretic properties, unanalyzable or not. On reductionist views, A-theoretic properties reduce to B-theoretic properties.<sup>19</sup> Translating into fact talk, eliminativists hold that there are only facts of the form  $[\varphi \text{ at } t]$  (i.e. ‘untensed facts’), while reductionists hold that facts of the form  $[\varphi]$  (i.e. ‘tensed facts’) reduce to facts of the form  $[\varphi \text{ at } t]$ .

While there are some prominent eliminativist views in the literature,<sup>20</sup> there are reasons to think that the disagreement between the A-theorist and the B-theorist is better characterized not as one about which type of facts *exists*, but over which type of fact is more fundamental. The strategy that seeks to paraphrase A-theoretic sentences into B-theoretic ones does not in fact show that there is no ontological commitment to A-theoretic

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<sup>18</sup> This last option is, in practice, available only on the A-theory of time. All extant versions of the B-theory of time seem committed to denying that any facts of the form  $[\varphi]$  are fundamental.

<sup>19</sup> See, for example, Markosian (2014) for a canonical statement of the B-theory of time. As Markosian puts it, “[a]ccording to the B Theory, there are no genuine, unanalyzable A properties, and all talk that appears to be about A properties is really reducible to talk about B relations. For example, when we say that the year 1900 has the property of being past, all we really mean is that 1900 is earlier than the time at which we are speaking.” Markosian’s characterization is put in terms of properties and relations, but it is straightforwardly translated into talk of facts that have properties and relations as constituents.

<sup>20</sup> See, for example, Parsons (2002). Parsons characterizes the B-theory as the view on which there are no A-properties.

properties. Given the equivalence of two sentences only one of which includes an explicit commitment to a particular entity, we have two options: either we can choose to abandon the explicit commitment in favor of the commitments of the austere sentence, or we can read into the more austere sentence a covert commitment to the entity explicitly invoked by the other sentence.<sup>21</sup> Thus the paraphrase strategy underdetermines questions about ontological commitment. Of course, one could try to argue for the non-existence of an A-theoretic fact by showing that the fact does not depend on any other fact, and thus lacks an explanation.<sup>22</sup> However, such an argument appears absent in the case of A-theoretic facts.<sup>23</sup> Indeed, there are good reasons even for a B-theorist to ‘take tense seriously’ and be committed to the ineliminability of tensed propositions: we need such propositions to figure as objects of propositional attitudes.<sup>24</sup> If the term ‘fact’ picks out a true proposition, a B-theorist committed to the ineliminability of tensed propositions is thereby committed to the ineliminability of tensed facts.

My focus in this chapter will be on B-theoretic views on which tensed facts reduce to untensed facts and views on which tensed facts are metaphysically explained by, but do not reduce to, untensed facts. Neither sort of view is eliminativist, because neither *denies* that

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<sup>21</sup> Cf. Wright (1983, p. 31-32).

<sup>22</sup> Fine (2001), for example, introduces a category of ‘non-factual propositions’ to accommodate propositions that are not part of reality (in the Finean sense), but lack a metaphysical explanation.

<sup>23</sup> I will consider and respond to one such argument later in this chapter.

<sup>24</sup> Cf. Zimmerman (2005, p. 405). According to Zimmerman, David Lewis was a B-theorist of this type (see for example, Lewis 1979). Zimmerman characterizes Lewis’s view as that which ‘takes tense seriously’, where seriousness about tense is cashed out in terms of an ineliminable commitment to ‘temporally perspectival propositions’. Lewis (1979) is in fact explicitly committed to properties as objects of propositional attitudes, but if by ‘proposition’ one means ‘that entity that plays the role of being the object of a propositional attitude’, then we can say that Lewis is committed to tensed propositions. And if by a ‘fact’ we simply mean ‘true proposition’, then Lewis is committed to tensed facts. Arriving at such a conclusion of course involves many conditional claims, but the important point is that one can have a coherent Lewisian picture that is B-theoretic, and yet committed to tensed facts.

there are tensed facts. Importantly for my purposes, both the reductionist and the non-reductionist B-theoretic views arguably require an explanatory relation to hold between the relevant tensed and untensed facts. For example, Rosen (2010) claims that it is a necessary (but not sufficient) condition on reduction that a metaphysical explanatory (or grounding) relation obtains between the facts being reduced and the facts to which they reduce.

One might argue that reduction can occur without an explanatory relation also obtaining between the relevant facts. For example, some philosophers hold that a fact reduces to another just in case the first fact is identical to the second.<sup>25</sup> But identity is symmetric and reflexive. By contrast, metaphysical explanation is widely taken to be asymmetric and irreflexive. I contend, however, that this ‘identity view’ of reduction does not put pressure on the claim that reduction requires the existence of an explanatory relation. First, instead of construing the identity view as being inconsistent with an explanatory relation obtaining between the relevant facts, we can instead construe it putting pressure on the formal features that are generally taken to govern explanation. In particular, if a fact reduces to another just in case the first fact is identical to the second, then perhaps explanation is not irreflexive and asymmetric.<sup>26</sup> Second, even the view on which reduction is identity posits a priority ordering between the facts involved: after all, on a reductive physicalist view on which mental states are identical to physical states, it is mental facts that reduce to physical facts, and not the other way around. This suggests that the relationship that obtains between the facts is still an explanatory one. Third, physicalism (both the

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<sup>25</sup> Cf. deRosset (2010) and Sider (2003).

<sup>26</sup> Indeed, there are philosophers who have rejected both the irreflexivity and asymmetry of explanation. For challenges to the irreflexivity see Lowe (1998), Fine (2012), Paseau (2010), and Jenkins (2011). For challenges to both irreflexivity and asymmetry see Wilson (2014).

reductive and non-reductive variety) sometimes gets characterized in terms of explanation—or its worldly correlate—‘ground’.<sup>27</sup> A view on which a reductive relationship precludes an explanatory relationship would thus rule out reductive versions of grounding- (or explanation-) based formulation of physicalism. Absent any other arguments to the contrary, the burden of showing that reduction is not explanatory therefore lies with those inclined to affirm that claim.

While the B-theory generally goes hand in hand with *permanantism*, the view it is always the case that all facts exist eternally, one could instead be a *presentist* B-theorist, or a *growing-block* B-theorist.<sup>28</sup> On a presentist view, facts come and go out of existence, whereas on a growing-block view facts come into existence, but do not go out of existence. My focus here will be on a permanentist B-theorist view of a certain sort, though the problem that I am about to raise remains a problem for a growing-block B-theoretic view as well. On the permanentist B-theory, facts of the form [ $\varphi$  at  $t$ ] are eternal (i.e. they obtain at every time). I will focus on permanentist B-theoretic views on which at least some facts of the form [ $\varphi$ ] are temporary (henceforth, just ‘B-theory’).<sup>29</sup> In the next two subsections, I argue for two conditional claims: (1) if the B-theory is true, then Temporal Necessitation is false; (2) if the B-theory is true, then Necessitation is false.

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<sup>27</sup> Cf. Dasgupta (2014)

<sup>28</sup> I borrow these labels from Cameron (2016).

<sup>29</sup> This turns out to be false on an eternalist view about A-theoretic facts (see Sullivan 2012 for a defense of this view). For present purposes, I’ll bracket such unorthodox views.

## §2.1 Temporal Necessitation

I will argue that on the B-theory that is the focus of this chapter, facts of the form  $[\varphi]$ , some of which are temporary, are explained by facts of the form  $[\varphi \text{ at } t]$ , which are all eternal. This theory has the following three features:

- 1) Tensed facts are explained by untensed facts.
- 2) At least some tensed facts are temporary (i.e. they don't obtain at every time).
- 3) Untensed facts are all eternal.

And now let us specify a principle analogous to Necessitation—'Temporal Necessitation'—that concerns the relationship between explanation and time, rather than explanation and modality:

TEMPORAL NECESSITATION: If  $[\varphi]$  explains  $[\psi]$ , then it is always the case that if  $[\varphi]$  obtains then  $[\psi]$  obtains.<sup>30</sup>

We are forced to reject Temporal Necessitation if we think that the B-Theoretic view committed to the above three claims is true: on that view, the *explanans* consists in an eternal fact, yet the *explanandum* may consist in a temporary fact. This means that *contra* Temporal Necessitation, it is not always the case that if the *explanans* obtains, the *explanandum* obtains. So a version of the B-Theory of time falsifies Temporal Necessitation. Looking ahead, in §4 I will argue for the stronger claim that we ought to reject Temporal Necessitation even if we happen to think that the B-theoretic view sketched above is likely false. In the rest of this section I address two objections to the coherence of the B-theory sketched above.

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<sup>30</sup> We can alternatively formulate Temporal Necessitation without explicit reference to facts: If its being the case that  $\varphi$  explains its being the case that  $\psi$ , then it is always the case that if  $\varphi$ , then  $\psi$ .

First, one might argue that when the view is properly developed, an untensed fact, such as the fact [It is raining at 3pm on January 4<sup>th</sup> 2017], cannot completely explain a tensed fact like [It is raining]. An additional A-theoretic fact is required—namely, the fact [It is now 3pm on January 4<sup>th</sup> 2017]. However, as characterized above, a B-theory is one on which only untensed facts are fundamental, so if an additional A-theoretic fact is required to complete the explanation, then the theory isn't a B-theory. Moreover, the intuition that the explanation is not complete without an A-theoretic fact falls short of showing that the explanation *must* at least partially consist in an A-theoretic fact. First, even if the intuition is taken seriously, this additional fact might be part of a background condition, and not figure into the actual explanation.<sup>31</sup> Indeed, it might not even be a genuine 'fact'.<sup>32</sup> Second, my argument does not require that the version of the B-theory sketched above is *true*. It requires only that it is coherent. The intuition that an A-theoretic fact might be needed to complete the explanation does not alone pose a threat to the coherence of the theory I have presented.

The second objection contends that the B-theory sketched above involves overdetermination of the sort that renders it metaphysically incoherent, and so the view can't be a version of the B-theory.<sup>33</sup> Consider the fact [It is raining at present]. According to our B-theory, this fact is explained by [It is raining at t], where 't' picks out a specific time. But the fact [It is raining] is presumably also explained by [Moisture condensed from the atmosphere is falling in separate drops]. We thus have a fact that is completely

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<sup>31</sup> Cf. Bader (manuscript).

<sup>32</sup> It might be a 'non-factual' proposition (see note 19).

<sup>33</sup> Sider (2003, p. 3) sketches a hypothetical case of incoherent metaphysical overdetermination: if causation is construed as a kind of fluid that gets used up when a cause brings about an effect, then it would be incoherent for an effect to have multiple causes.

metaphysically explained in two distinct ways, and that seems like a case of overdetermination.

Yet it is unclear whether the sort of overdetermination described above is objectionable, let alone incoherent. Call metaphysical overdetermination ‘objectionable’ when it has the following structure: [p] is explained by [q], and it is also explained by [r], and there is no overlap between the immediate or mediate explanations for [q] and [r]. Let us say that there is ‘overlap’ between the explanations for [q] and [r] just in case the explanations have one or more facts in common. Overdetermination is then not objectionable when the overdetermining facts overlap in their explanations. One reason to think that such a criterion is intuitively plausible is that it accommodates overdetermination that occurs only at the non-fundamental level (as in cases where [a] is completely explained by both [b] and [c], and [b] and [c] are both explained only by [d], which is fundamental<sup>34</sup>), and overdetermination that comes from the ‘same direction’ (as in cases of transitivity, where [a] explains [b], and [b] explains [c], and so [c] is overdetermined by [a] and [b]). These cases of overdetermination seem unproblematic because their occurrence does not imply any sense in which a metaphorical God had to do ‘extra’ or ‘redundant’ work.<sup>35</sup>

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<sup>34</sup> For a concrete example of such metaphysical overdetermination, consider a statue made out of red marble. On the assumption that determinates are more fundamental than determinables (though see Wilson 2012 for an argument against this assumption), suppose that the fact [The statue is red] is explained by the fact [The statue is scarlet]. The fact [The statue is red] is also explained by the facts [P1 is red], [P2 is red], [P3 is red] and so on, for every colored proper part P, and is thus seemingly overdetermined. But the facts [P1 is red], [P2 is red], [P3 is red] and so on are in turn explained by the facts [P1 is scarlet], [P2 is scarlet], [P3 is scarlet] and so on, which also explain the [The statue is scarlet]. The fact [The statue is red] is therefore not problematically overdetermined—at least not in this way.

<sup>35</sup> Della Rocca (2014) argues that even redundancy at the non-fundamental level is problematic. However, Della Rocca’s argument is a more general argument for not positing non-fundamental entities. If one has no qualms about positing non-fundamental entities more generally, then it is unclear why one should find overdetermination at the non-fundamental level problematic.

If we are inclined to find the above cases of overdetermination unobjectionable—as most of us are—then we should also find unproblematic the sort of overdetermination our B-theory is committed to.<sup>36</sup> There is no objectionable overdetermination involved on a B-theoretic view on which a tensed fact is explained by an untensed one. For suppose that a tensed fact [p] is explained by another tensed fact [q]. Now suppose that these facts are explained by [p at t] and [q at t], respectively. Just as there is an explanatory relation that holds between [p] and [q], [p at t] is also explained by [q at t]. Thus [p] is explained by both [q] and [p at t], but there is no genuine overdetermination because both [q] and [p at t] are explained by [q at t]. Metaphysical overdetermination therefore poses no threat to a version of the B-theory on which a tensed fact is completely explained by an untensed one.<sup>37</sup>

I have argued in this subsection for a conditional claim: the claim that if (our version of) the B-theory is true, then Temporal Necessitation is false. I now show that, given an additional assumption, if the B-theory is true, then Necessitation is also false.

## §2.2 The Eternality of Necessity

The argument for the claim that if our B-theory is true, then Necessitation is false, is quite straightforward. If we assume the principle that if something is the case necessarily, then it is

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<sup>36</sup> The question of when exactly metaphysical overdetermination is problematic admittedly deserves a treatment much more thorough than what I have said here. My aim here has just been to point out that insofar as we are content with some types of metaphysical overdetermination, we should be content with overdetermination in this case.

<sup>37</sup> One might worry that the type of overdetermination to which the B-theory is committed to is inconsistent with Finean impure logic of ground for the following reason: on the proposed view, disjunctive facts like [p or q] are also explained by tenseless facts like [(p or q) at t], where ‘t’ picks out a specific time. Though the logic of ground allows that disjunctions can be explanatorily overdetermined, the overdetermination can occur only *through* the relevant disjuncts, which is not the case on the B-theory. However, the response I provided above applies here too: there is intuitively no objectionable overdetermination because [(p or q) at t] is very plausibly explained by [p at t] or [q at t]. The burden is thus on those who defend the Finean framework for the logic of ground to show that it’s rules are more intuitive.

always the case, the falsity of Temporal Necessitation takes us to the falsity of Necessitation.<sup>38</sup> It does so in the following way. Temporal Necessitation says that if  $[\phi]$  explains  $[\psi]$ , then it is always the case that if  $[\phi]$  obtains then  $[\psi]$  obtains. My argument against Temporal Necessitation showed that a fact  $[p]$  can explain a fact  $[q]$  even when it's not always the case that if  $[p]$  obtains then  $[q]$  obtains. This means that a fact can explain another without it being eternally the case that if the first fact obtains, then so does the second. But if it's not eternally the case that if  $[p]$  obtains then  $[q]$  obtains, then it's not necessarily the case that if  $[p]$  obtains then  $[q]$  obtains. Thus, the B-theory of time puts direct pressure on Necessitation if we assume that if something is necessarily the case, it is always the case. We can put the argument formally as follows.

1. It's not the case that for all facts  $[\phi]$  and  $[\psi]$ , if  $[\phi]$  explains  $[\psi]$ , then it is always the case that if  $[\phi]$  obtains, then  $[\psi]$  obtains [From Falsity of Temporal Necessitation]
2. If a fact necessarily obtains, then it always obtains [Assumption]
3. For some facts  $[\phi]$  and  $[\psi]$ ,  $[\phi]$  explains  $[\psi]$  & it is not always the case that if  $[\phi]$  obtains then  $[\psi]$  obtains [From 1]
4.  $[p]$  explains  $[q]$  & it is not always the case that if  $[p]$  obtains then  $[q]$  obtains [From 3]
5.  $[p]$  explains  $[q]$  [From 4]
6. It is not always the case that if  $[p]$  obtains then  $[q]$  obtains [From 4]

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<sup>38</sup> For a defense of this principle see Dorr and Goodman (forthcoming).

7. It is not the case that necessarily, if [p] obtains then [q] obtains [From 2 and 6]
8. [p] explains [q], & it is not the case that necessarily, if [p] obtains then [q] obtains [From 5 and 7]

8 entails that Necessitation is false. However, despite the intuitive appeal of the principle according to which if something is necessarily the case then it is always the case, one might still be tempted to reject the principle. Moreover, our case for rejecting Necessitation would be stronger if we could rely upon fewer assumptions. Thus, in the next section I argue for a distinct conditional claim: the claim that if the modal analogue of our B-theory is true, then Necessitation is false. I will then show in, §4, that the antecedents of both conditional claims can be discharged.

### §3 EXPLAINING CONTINGENT FACTS

Call the modal analogue of the B-theory of time ‘Modal B-theory’. In keeping with the B-theory of time, Modal B-theory has the following features:

- 1) Facts of the form  $[\varphi]$  are explained by facts of the form  $[\varphi \text{ at } w]$  (‘world-indexed facts’).
- 2) At least some facts of the form  $[\varphi]$  are contingent (i.e. they don’t obtain at every world).
- 3) World-indexed facts are all necessary.

Claims (2) and (3) are uncontroversial: it is widely accepted that at least some facts are contingent, and that world-indexed facts are necessary.<sup>39</sup> Claim (1), when combined with claims (2) and (3), entails that every contingent fact is explained by a necessary fact. Just as no tensed fact is left unexplained on the B-theory of time, no contingent fact is unexplained on Modal B-theory. But why think that facts of the form  $[\varphi]$  are explained by facts of the form  $[\varphi \text{ at } w]$ ?

In the previous section, I showed that if the B-theory of time is true, then Temporal Necessitation is false. What I need to show is that like the B-theory of time, the modal analogue of our B-theory is also coherent and metaphysically serious.<sup>40</sup> While the metaphysical seriousness of the view is not relevant for the purposes of establishing the conditional claim (i.e. that if Modal B-theory is true, then Necessitation is false), it will be relevant for establishing the falsity of Necessitation in the next section.

Some *prima facie* evidence for the coherence of Modal-B theory comes from the fact that its structure exactly parallels the B-theory of time. There is a long philosophical tradition of taking the considerations in favor of various modal views to be exactly analogous to the

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<sup>39</sup> Fine (2005b, p. 324) draws a distinction between necessary truths that are true “regardless of the circumstances”, and those that are true “whatever the circumstances” and call the first class of truths “transcendental”. It is the first sense in which world-indexed facts are necessary. Some may find this sense of necessity trivial (if not transcendental). But insofar as proponents of Necessitation and the principle that necessary facts cannot, on their own, explain a contingent one do not restrict these principles to just the second sense of necessity, I put the distinction aside.

<sup>40</sup> What is, or isn’t, metaphysically serious is admittedly vague, and a thorough exploration of the question would require its own chapter. Fortunately for my purposes, a theory of the metaphysically serious is not required for an intuitive handle on the concept. However, I take it that evidence in support of the metaphysical seriousness of a given view might include, *inter alia*, the view being held by some metaphysicians, and its being motivated under certain assumptions.

considerations in favor of various temporal views, and vice versa.<sup>41</sup> To be sure, there are some disanalogies between modality and temporality. For example, there can be causal connections between entities located at different times, but not different worlds. This particular disanalogy, however, does not bear on the present case.

A bit more has to be done to show that Modal-B theory is not just coherent, but metaphysically serious. In what follows, I will show that (1) a number of metaphysical positions can be (and perhaps in fact are) committed to Modal B-Theory; and (2) there exists an argument in favor of Modal B-Theory that rests upon independently plausible premises.

Views committed to Modal B-Theory include only those that are *realist* about possible worlds. Someone who is a realist about possible worlds thinks that whenever something is possible, there is a world in which it is the case. Not every realist view, however, is committed to Modal B-Theory. Those committed to it are the views that take ways the world could be to be (metaphysically) explanatorily prior to the way the world actually is. I will discuss two examples of such views here: Lewisian Modal Realism and Leibnizian Realism.

Lewisian Modal Realism is perhaps the most prominent realist view about possible worlds. It holds that all worlds are ontologically on par. Just as in the temporal case a Lewisian can accommodate tensed propositions, a Lewisian view can accommodate world-neutral (as opposed to world-indexed) propositions in the modal case.<sup>42</sup> Thus, a Lewisian can be committed to both facts of the form  $[\varphi \text{ at } w]$  and facts of the form  $[\varphi]$ , while taking

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<sup>41</sup> See, for example, Rini and Cresswell (2012) and Schaffer (2012). Schaffer exploits the parallel between modality and temporality to show that the considerations that favor eternalism also favor necessitarianism.

<sup>42</sup> See note 24.

facts of the form  $[\varphi \text{ at } w]$  to be explanatorily more fundamental. On such a realist view, the fact [It is raining] would then be explained by the fact [It is raining in  $w$ ], where ‘ $w$ ’ is a name for a particular world.<sup>43</sup> A Lewisian could, of course, be committed to both types of facts while denying that any explanatory relations holds between them, but this would render the view utterly mysterious: what could explain why, for every fact of the form  $[\varphi]$ , there exists a corresponding fact of the form  $[\varphi \text{ at } w]$ ? If an explanatory relation *does* hold between the two types of facts, we get a violation of Necessitation, for at least some facts of the form  $[\varphi]$  are contingent, while all facts of the form  $[\varphi \text{ at } w]$  are necessary.

Like Lewisian modal realism, Leibnizian realism takes ways that the world could be to be prior to ways that the world actually is. But this realist view differs from Lewisian modal realism in that it does not take all worlds to be ontologically on par. It holds instead that at most one world has an ontological status distinct from that of other possible worlds.<sup>44</sup> I will here discuss two specific examples of Leibnizian Realism: the ‘optimist’ and the ‘simple’ views of actuality. According to the optimist view (which may or may not have been held by Leibniz himself), the fact that it is raining is explained jointly by the fact that it is raining in world  $w$ , the fact that  $w$  is the best of all possible worlds, and the fact that it is in the nature of God to actualize the best of all possible worlds. Since all three facts are necessary, we get a violation of Necessitation.<sup>45</sup> On the simple view of actuality, by contrast,

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<sup>43</sup> I call this view ‘Lewisian’ without attributing it to Lewis because it takes ways the world could be to be prior to the way the world actually is. Lewis, to my knowledge, does not explicitly commit himself to the explanatory claim entailed by Modal B-theory.

<sup>44</sup> See Bricker (2006) for a recent defense of a version of Leibnizian Realism.

<sup>45</sup> It is unclear whether Leibniz was committed to its being necessary that this is the best of all possible worlds, and that it is in God’s nature to actualize the best of all possible worlds. See Adams (1977) for a nuanced discussion of the evolution of Leibniz’s views on the topic.

the fact that it is raining is explained jointly by the fact that it is raining in world  $w$ , and the fact that  $w$  is actual (where actuality is a simple, unanalyzable property that  $w$  has necessarily). Since, once again, both explaining facts are necessary yet the fact being explained is not, we get a violation of Necessitation.<sup>46</sup>

Thus far I have shown that some well-known metaphysical views are plausibly committed to Modal B-theory. What I will show now is that these views—those on which the ways the world could be are prior to the way the world actually is—are not only plausibly held by illustrious philosophers, but also turn out to be well motivated if one accepts a particular version of a widely endorsed constraint on explanation. Call this constraint the ‘Systematicity Constraint’. According to the Systematicity Constraint, facts of a kind ought to be explained in roughly the same sort of way.<sup>47</sup> Thus, all conjunctive facts are explained by their conjuncts. Indeed, one might think it strange if only some conjunctive facts were grounded in their conjuncts. The Systematicity Constraint can be extended to cases beyond conjunction. Suppose, for example, that direct realism about perception is true. Now suppose that I perceive a yellow coffee mug on my table and that this fact is metaphysically explained by a fact that treats my experience as involving a primitive relation to the object of experience (i.e. the yellow mug). It would surely then be *very* strange if my other experiences

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<sup>46</sup> Leibniz’s actual view may have committed him to the necessity of all facts (even those of the form  $[\emptyset]$ ). But this commitment is certainly not compulsory on a *Leibnizian* view of the kind I have presented here. Adams (1974) attributes a version of what I have here called the ‘simple view of actuality’ to Descartes. (p. 221) Descartes, according to Adams, treats actuality as a simple, unanalyzable property had by the actual world that distinguishes it from other possible worlds. But Adams is silent about whether Descartes believes that the actual world has the property necessarily or only contingently.

<sup>47</sup> Rosen (2010, p. 131) calls such constraint in this neighborhood ‘formality’. According to formality, whenever a fact  $a$  grounds a fact  $b$ , there exists propositional forms  $\phi$  and  $\psi$ , such that  $a$  is of the form  $\phi$  and  $b$  is of the form  $\psi$ , and for all propositions  $p, q$ : if  $p$  is of the form  $\phi$  and  $q$  is of the form  $\psi$  and  $q$  is true, then  $q$  explains  $p$ .

(for example, my perceiving the tree outside my window) were not also explained by facts that treated the experiences as involving primitive relations to the relevant objects. There is a very strong intuition that facts of a kind ought to be explained in roughly the same sort of way. There are, of course, difficult questions about how we might individuate kinds of facts, but it appears relatively uncontroversial that the Systematicity Constraint should apply to facts of the forms  $[\varphi]$  and  $[\varphi \text{ in } w]$ . After all, the two types of facts, like the more straightforward case of conjunctive facts, have been characterized in terms of their logical structure. On the assumption then that the two types of facts are not explanatorily unrelated, it is either the case that facts of the form  $[\varphi]$  are explained by facts of the form  $[\varphi \text{ in } w]$ , or facts of the form  $[\varphi \text{ in } w]$  are explained by facts of the form  $[\varphi]$ . Now suppose for *reductio* that instead of Modal B-Theory, some fact  $[q \text{ in } w_1]$  is explained by  $[q]$ . Only some facts of the form  $[\varphi \text{ in } w]$  would have this type of explanation available to them, for at most one world is actual (unless, like Lewis, one takes ‘actual’ to be an indexical). Where  $w$  is not the actual world, no fact of the form  $[\varphi]$  explains the relevant fact of the form  $[\varphi \text{ in } w]$ . But this result seems to violate the Systematicity Constraint. One might try to offer an alternative analysis of facts of the form  $[\varphi \text{ in } w]$  that obeys the Systematicity Constraint. But one would have to show that such an alternative analysis was explanatory, rather than merely definitional.<sup>48</sup> Thus, in the absence of an argument demonstrating that facts of the form  $[\varphi]$  can systematically explain facts of the form  $[\varphi \text{ in } w]$ , the Systematicity Constraint provides, at the very least, a *prima facie* motivation for Modal B-theory.

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<sup>48</sup> For example, one could say that what it is for  $[p \text{ in } w]$  to obtain is simply for  $w$  to be a world-proposition that entails  $p$  (Litland, pc). However, such an analysis seemingly jettisons the claim that  $[p \text{ in } w]$  obtains *in virtue of*  $[p]$ .

This disagreement over which is the more fundamental fact—a fact of the form  $[\varphi]$  or of the form  $[\varphi \text{ in } w]$ —is largely independent of the disagreement over actualism (the view that everything that exists actually exists). Indeed, one could be a Modal B-theorist, and an actualist, as long as one did not take worlds to be primitive, and instead provided an account of them in terms of actual entities, such as propositions. The relevant disagreement over which is the more fundamental fact is structurally parallel to (and in fact, is the metaphysical analogue of) the disagreement in semantics over which is the more fundamental notion of truth—truth *simpliciter* or truth in a world (a notion standardly introduced when providing a semantics for modal logic).

Before I close this section, I address a potential objection to the kind of explanatory claim that Modal B-theory is committed to. If successful, the objection would undermine the metaphysical seriousness of Modal B-theory. The objection takes the form of an incredulous stare: surely, it is *absurd* to think that the fact that I am writing this chapter is metaphysically explained by the fact that I am writing this chapter in  $w$ , where ‘ $w$ ’ is a name for this world. The fact that I am writing this chapter is more plausibly explained by facts like [I am furiously hammering the keyboard], [I am making an argument], etc.

The first thing to note is that, as suggested by the above discussion of overdetermination, the claim that  $[p]$  is explained by  $[p \text{ in } w]$  need not exclude other explanations for  $[p]$ . Second, to see why the preceding explanatory claim is not absurd, consider the following case. Suppose that I had location amnesia, such that I could never remember where I was. Now suppose that I find myself in a sweltering place (the air is oppressive, the sidewalk is burning, there are bugs everywhere, etc.), and turn to a friend

(who knows I suffer from location amnesia) and ask, ‘Why is it so hot?’. It seems completely natural for the friend to reply by saying, ‘It is hot, because it is hot in Austin’. The explanation offered here is not causal: it does not specify what caused it to be the case that it is hot. But it does say what *makes it the case* that it is hot: it is the fact that it is hot in Austin. One might argue that such an explanation only seems plausible given the assumption that I suffer from location amnesia. Absent this assumption, it does not seem natural to answer the question ‘Why is it hot?’ with ‘It is hot because it is hot in Austin’, unless the question was not somehow meant literally, but as an expression of frustration (for example). However, it is worth noting that metaphysical explanations more generally (perhaps unlike causal or scientific explanations) do not tend to figure naturally in ordinary conversation. Many philosophers, for example, think that conjunctive facts are explained by their conjuncts, but in ordinary conversation, it would be very strange to answer the question ‘What makes it the case that Clinton lost the election and Trump won?’ by saying, ‘Because Clinton lost the election, and Trump won’.

Consider a slightly different case. Suppose I wanted to know what explained the fact that there are cheetahs, and my very knowledgeable friend said, ‘There are cheetahs because there are cheetahs in the Serengeti’. Again, the explanation offered here is a metaphysical one: *what makes it the case* that there are cheetahs is that there are cheetahs in the Serengeti.<sup>49</sup> If one finds these cases intuitive (as I do), then I argue that one should also accept the

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<sup>49</sup> The fact that there are cheetahs involves existential quantification. If one holds the view that existentially quantified facts are ultimately explained by instances (in this case, specific cheetahs), then the analogy between this case and the modal case (i.e. [p in w] explains [p]) is not perfect. But the fact [There are cheetahs in the Serengeti] is plausibly still an intermediate explanation of the fact [There are cheetahs].

analogous claim in the modal case: [p] because [p in w]. After all, the world w is just a location, like Austin and the Serengeti.

Moreover, the idea that one or more necessary facts by themselves may explain a contingent fact is not altogether alien in metaphysics. Suppose, for example, that God exists, and that everything that is good in the world is good because God is good. Then the following explanatory claim is at least plausible: what makes it the case that Jon is good is that God is good. But Jon is only contingently good, whereas God is necessarily good. We thus have a case where a necessary fact explains a contingent one. What is special about the particular explanatory claim entailed by Modal B-theory is that *every* fact of the form [ $\varphi$ ] is such that it has an explanation of the form [ $\varphi$  in  $w$ ].

In this section, I have argued that Modal B-theory, as the analogue of the B-theory of time, is a coherent and metaphysically serious view. I have also argued that *if* Modal B-theory is true, then every contingent fact is explained by a necessary fact, and Necessitation is thus false. In the next section, I will argue that we should reject Temporal Necessitation and Necessitation as principles that govern metaphysical explanation, even if we have reason to reject the antecedents of the two conditional claims.

## §4 REJECTING TEMPORAL NECESSITATION AND NECESSITATION

### §4.1 The Ecumenicality Constraint

I am going to show that we ought to reject Temporal Necessitation and Necessitation even if we happen to think that the B-Theory sketched in §2 and Modal B-theory sketched in §3 are *likely false*. To see why, let us take a step back to think about a fairly entrenched methodological principle. According to this principle—call it the ‘ecumenicality

constraint’—our theories about tools for theorizing ought to be sensitive to, and appropriately accommodate, theoretical claims that employ those tools. These tools for theorizing are those basic concepts that philosophers use when they make specific philosophical claims, concepts like those expressed by ‘right’, ‘justified’, ‘fundamental’, ‘in virtue of’, etc. Thus, one might expect a theory of rightness to accommodate specific instances—particularly those that are widely recognized—of what is right. For example, given that most philosophers think that it is right to relieve suffering, a theory of rightness that falsified this claim simply by definition (perhaps because it entailed that suffering was not evil) would fail to be an adequate theory of rightness.

The ecumenicality constraint is widely endorsed, both implicitly and explicitly. It is implicitly endorsed in arguments-by-counterexample: counterexamples seem to have force only given the background assumption that the theories they target ought to be neutral with respect to a range of particular cases. For example, counterexamples to the principles that govern metaphysical explanation—such as transitivity, symmetry and irreflexivity—tend to proceed by showing that the principle in question cannot accommodate a coherent, live, and perhaps even plausible, hypothesis that involves a metaphysical explanatory claim. Wilson (2014) argues against the irreflexivity of grounding by referencing various live positions on which there is reflexive dependence, such as a Leibnizian view on which monads are mutually interdependent fundamental entities.<sup>50</sup> Presumably, it is not crucial to the Leibnizian counterexample that Wilson raises that monads, as foundational entities, *actually* exist and are mutually interdependent. All that is required is that it is a coherent and live

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<sup>50</sup> See Wilson (2014, p. 571-2).

hypothesis. Likewise, Schaffer’s counterexamples to transitivity—such as ‘the third member’ counterexample, which involves set-membership (see Schaffer 2012, p. 127)—does not require the actual existence of sets. The mere coherence of the view, combined with its live possibility, is enough. Absent a commitment to the ecumenicality constraint, it is difficult to see how coherent (and perhaps even widely-endorsed) hypotheses that have yet to be established as *true* could put pressure on the principles taken to govern metaphysical explanation.<sup>51</sup>

The ecumenicality constraint is explicitly endorsed in the work of Fine (1994, 2013) and Wilson (forthcoming). Fine, for example, in discussing Sider’s account of fundamentality, says:

Of course, we do not want to be able to accommodate any old position on what is and is not fundamental. The position should be coherent and it should perhaps have some plausibility. It is hard to say what else might be involved, but what seems clear is that we should not exclude a position simply on the grounds that it does not conform to our theory; and it seems to me that Sider’s response is in danger of doing just that. (2013, p. 728)

Fine’s claim here seems to be that a theory of the fundamental should not rule out a claim about what is (or is not) fundamental simply because it does not conform to our theory of fundamentality.<sup>52</sup> The right response, in such a case, would be to revise the theory. Call claims that constitute a theory of a central tool for theorizing ‘second-order principles’, and

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<sup>51</sup> For a related discussion of this ‘method-by-counterexample’ (the method of evaluating philosophical claims by testing those claims against possible scenarios) for the case of causation, see Paul and Hall (2013).

<sup>52</sup> Fine also appeals to such a constraint in the context of a discussion of a theory of essence (Cf. Fine 1994). After raising his well-known counterexamples to a modal account of essence, he argues: “Nor is it critical to the example that the reader actually endorse the particular modal and essentialist claims to which I have made appeal. All that is necessary is that he should recognize the intelligibility of a position which makes such claims. For any reasonable account of essence should not be biased towards one metaphysical view rather than the other. It should not settle, as a matter of definition, any issue which we are inclined to regard as a matter of substance.” (p. 5). See Wilson (forthcoming) for a detailed discussion and endorsement of this aspect of Fine’s methodology.

claims that exploit that tool ‘first-order metaphysical claims’. We can now state the ecumenicality constraint more precisely as follows:

*The Ecumenicality Constraint:* The second-order principles that govern our central tools for philosophical theorizing ought to remain ecumenical with respect to a sufficiently broad range of first-order metaphysical claims.

That such a constraint is widely endorsed does not mean, however, that it ought to be endorsed. Thus, in what follows, I provide an argument for the constraint.

Theoretical claims about our toolbox concepts like *fundamentality* and *explanation* are best understood as conceptual truths. Given that they are thus understood, the epistemic possibility of a coherent and metaphysically serious view that is in tension with a putative conceptual truth is enough to undermine it. Thus, if the claim that metaphysical explanation is necessitating is meant to be a conceptual claim about metaphysical explanation, then the identification of a coherent and metaphysically serious scenario on which there is metaphysical explanation without necessitation would show that the conceptual claim is false.

It is important that the target claim be a conceptual truth, for if it were not a conceptual truth, it would be less clear what pressure is exerted by potential counterexamples. It may be that all a coherent scenario on which explanation is not necessitating shows is that metaphysical explanation without necessitation is an epistemic possibility. If that is right, then it is very unclear why the principles that govern grounding ought to remain ecumenical with respect to merely epistemic possibilities. Compare: according to my four-year-old niece, it is *epistemically possible* that two plus two is five. But this

does not mean that it is metaphysically possible that two plus two is five, and so no pressure is put on our theory of arithmetic. Even if a coherent scenario on which we have metaphysical explanation without necessitation is taken to be evidence of the *metaphysical possibility* of such a scenario, it would seem to put pressure on Necessitation only if we assume either that metaphysical theses hold necessarily (and so a view that was metaphysically possible would also be actual), or if we assume that Necessitation holds necessarily.<sup>53</sup> Both assumptions are controversial.

Given the widespread use of the argument-by-counterexample in philosophical theorizing—and particularly in metaphysics—methodological charity demands that we construe our target claim—the claim that explanation is necessitating—as a conceptual truth. The target claim also has to be construed as a conceptual truth because there are no other viable alternatives. If the claim that explanation is necessitating were not conceptual, and so not arrived at via conceptual analysis, it would have to be established some other way. It could not be an empirical truth, for there is no sufficient empirical basis for deciding between rival views about our metaphysical ‘tools’. In particular, there is no empirical basis for figuring out whether or not explanation is necessitating. Even if it turned out to be the case that one could somehow, by empirical investigation, identify all actual instances of

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<sup>53</sup> The claim that the structural principles that govern grounding hold necessarily is ambiguous between the following two different claims where the variable ‘x’ takes a grounding claim as its value and ‘Fx’ says that the value of x satisfies Necessitation.

1.  $\forall x(Fx \rightarrow \Box Fx)$
2.  $\Box \forall x(Fx \rightarrow \Box Fx)$

The first claim says that every grounding claim (in the actual world) that satisfies Necessitation necessarily satisfies it. The second claim says that in all possible worlds, every grounding claim that satisfies Necessitation necessarily satisfies it. It is only on the second of the above claims that the mere possibility of a scenario where a fact is explained by another fact, but is not necessitated by it, puts pressure on Necessitation. (The two claims collapse if metaphysical modality satisfies S5).

explanation and verify that they were all necessitating (though it is very unclear how one could engage in such a project), it would still not be enough to establish that explanation is necessitating. The claim that explanation is necessitating is not merely a descriptive claim about actual explanations: even if explanation was not necessitating, it could turn out that all *actual* explanations were necessitating. The claim that explanation is necessitating is a claim about what principles govern explanation, and not merely a descriptive claim about actual explanations.

Thus, the claim that explanation is necessitating must be a conceptual claim about metaphysical explanation. And as a putative conceptual truth, it is subject to being evaluated against our grasp of explanatory claims and the concept of explanation. Our account of a concept that we already grasp should not rule out as impossible scenarios we intuitively recognize as genuinely conceptually and epistemically possible.

The ecumenicality constraint raises some hard questions. For example, what criterion might distinguish the first-order metaphysical claims that must be accommodated from those that need not be consistent with our second-order principles? The mere coherence of a first-order metaphysical claim seems too weak a requirement, but its truth seems much too strong. We might indeed be skeptics about whether we can even provide a set of necessary and sufficient conditions that might operate as a criterion for ecumenical accommodation. However, some conditions plausibly count as sufficient. If the relevant first-order metaphysical claims are widely held, or follow from a widely held theory, then they ought to be accommodated. Or if a first-order metaphysical claim follows from an argument whose premises are independently plausible, then it ought to be accommodated. In such cases, we

would have sufficient reason for the first-order metaphysical claim to be such that it ought to be accommodated by the relevant second order principles, even if we believe that the first-order metaphysical claim in question is likely false. In the next subsection, I show how the present discussion of ecumenicality applies to the B-theory of time.

#### §4.2 Rejecting Temporal Necessitation

The B-Theory of time outlined earlier satisfies both sufficient conditions stated above for ecumenical accommodation: it is both widely held, and entailed by independently plausible premises. It may turn out that the B-Theory of time is in fact false. But what is important is that it not turn out to be *trivially* false, or false by definition, given our second-order principles. If it does turn out to be false, it should turn out to be false for a substantive reason (perhaps it is inconsistent with plausible scientific theses). It should not turn out to be false because our second-order principles concerning explanation preclude the sort of explanatory claim that our B-Theory is committed to.

Might there perhaps be an independent reason for being committed to a second-order principle—a reason that might then justify ignoring certain first-order commitments? While in theory possible, it is difficult to see what sort of independent reason one could realistically have to be committed to a second-order principle that could override how well it accommodates first-order commitments. It would seem that absent a *very* strong independent consideration (such as the infallible voice of God informing us that a particular second-order principle was the right one), our best guide to the correct second order-principle is just how well it tracks first-order commitments (even if accommodating a range

of first-order commitments was an insufficient condition for commitment to a second-order principle.)

The conditional claim established in §2, along with the claim—motivated by the ecumenicality constraint—that our theory of explanation should not trivially rule out a viable version of the B-Theory of time, entails the falsity of Temporal Necessitation.

However, rejecting Temporal Necessitation does not imply that there are no temporal constraints that govern explanation. We can formulate other principles that can accommodate our version of the B-Theory of time. Here is one such principle (assuming for the moment that metaphysical explanation only relates facts synchronically):

TEMPORAL NECESSITATION\*: If  $[\phi]$  explains  $[\psi]$ , then it is always the case that if  $[\phi]$  obtains then  $[\psi]$  obtains, where if the fact assigned to ' $[\phi]$ ' is untensed, so too must be the fact assigned to ' $[\psi]$ ', and if the fact assigned to ' $[\psi]$ ' is tensed, so must be the fact assigned to ' $[\phi]$ '.

The value assigned to one variable thus constrains which values can be assigned to the second variable. This constraint prevents the case of an untensed fact explaining a tensed fact from posing a counterexample to Temporal Necessitation\*.

Some complications arise when we permit ' $[\phi]$ ' and ' $[\psi]$ ' to take as values facts that have other facts as components (so-called 'complex' facts). As mentioned above, if a complex fact is 'mixed' (i.e. it involves both tensed and untensed facts), then it will count as tensed. A complex fact will then be untensed only if each of its component facts is untensed.

If the facts assigned to ‘[ $\phi$ ]’ and to ‘[ $\psi$ ]’ are complex (e.g. conjunctive or disjunctive) then the fact that [ $\phi$ ] explains [ $\psi$ ] satisfies Temporal Necessitation\* only if those non-complex components of [ $\phi$ ] and [ $\psi$ ] which stand in an explanatory relation also satisfy the principle. For example, if the fact [p and q] is grounded in the fact [p at  $t_0$  and r], then this explanatory claim satisfies Temporal Necessitation\* only if the pair of facts [p] (a conjunct of [p and q]) and [p at  $t_0$ ] satisfy the principle. In the next subsection, I discuss how the Ecumenicality Constraint and the conditional claim established in §3 lead to the rejection of Necessitation.

### §4.3 Rejecting Necessitation

Just as the B-Theory of time motivates the rejection of Temporal Necessitation, the modal analogue of the B-theory—Modal B-theory—motivates the rejection of Necessitation, *even if* Modal B-theory is likely false. What matters is that Modal B-theory should not be rendered *trivially* false by our theory of explanation. In particular, it should not be the case that our second order theory of explanation—a theory that is supposed to be sufficiently general so as to accommodate relevant first order commitments—precludes, by definition, the sort of explanatory claim to which Modal B-Theory is committed.

The structural parallel with the B-theory of time shows that Modal B-theory is a coherent view. But for Modal B-theory to put pressure on Necessitation in the way that the B-theory of time puts pressure on Temporal Necessitation, I had to show that Modal B-theory was metaphysically serious. I argued that this was the case by showing that a number of views in metaphysics are in fact (or could be) committed to the Modal B-theory, and by providing an argument for a commitment to Modal B-theory.

For reasons similar to those in the temporal case, Modal B-Theory then motivates the rejection of Necessitation. But once again, one could still adopt a restricted principle such as the following:

RESTRICTED NECESSITATION: If  $[\phi]$  explains  $[\psi]$ , then it is necessarily the case that if  $[\phi]$  obtains then  $[\psi]$  obtains, where if the fact assigned to ‘ $[\phi]$ ’ is world-indexed, so too must be the fact assigned to ‘ $[\psi]$ ’ and if the fact assigned to ‘ $[\psi]$ ’ is contingent, so must be the fact assigned to ‘ $[\phi]$ ’.

In the next section, we switch gears. I show how the positive result established in this section can address a longstanding objection to the PSR.

### §5 RESCUING THE PSR

It has seemed to many that a commitment to the PSR risks a commitment to the claim that the world could not have been otherwise (i.e. that all facts are necessary). However, it has proven notoriously difficult to provide a clear argument for this claim. Perhaps the most widely discussed attempt has been an argument due to Jonathan Bennett and Peter van Inwagen.

Their argument can be briefly stated as follows. Take the conjunction  $C$  of all contingent facts. Suppose that a fact  $[p]$  explains  $C$ . Now  $[p]$  is either contingent or necessary. If  $[p]$  is contingent, it is itself a conjunct in  $C$ . But  $[p]$  cannot explain a fact of which it is itself a conjunct (since this would violate the plausible requirement that explanation is non-circular). So,  $[p]$  has to be necessary. But explanation also obeys Necessitation, and so, assuming the Kripke axiom ( $(K) \Box(\phi \rightarrow \psi) \rightarrow (\Box\phi \rightarrow \Box\psi)$ ) is true,  $C$

would also be necessary (contrary to our initial definition of C as the conjunction of all contingent facts). Yet if all facts are necessary, the world cannot be otherwise.<sup>54</sup>

Various responses to this argument have been offered, but there remains a lingering suspicion that the responses target problems that merely concern the formulation of the argument rather than its deeper substance. For example, Levey (2016) argues the concept *contingent truth* is indefinitely extensible, and so the idea of “all contingent truths” does not make sense. But it is possible that indefinite extensibility signals a limitation on expressibility, rather than a deep metaphysical truth. Schnieder and Steinberg (2016) argue that the argument for the claim that the PSR entails necessitarianism relies on a problematic application of irreflexivity: in the literature on grounding, it is not generally considered a violation of irreflexivity that a conjunction is explained by its conjuncts. But again, while this response perhaps addresses the argument as originally formulated, the argument can be reformulated such that the response does not apply. It can, for example, be put in terms of what explains the totality—rather than the conjunction—of contingent facts.<sup>55</sup> As a result, I believe that saving the PSR requires undermining the very core of the argument. And that core is Necessitation. I have shown that we have good reason to give up Necessitation in favor of (at least) Restricted Necessitation. Restricted Necessitation allows that a necessary

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<sup>54</sup> Compare Bennett (1984, p. 115), van Inwagen (2002, pp. 104-107), and Della Rocca (2010, fn. 13, p. 9) for versions of this argument. See Koons (1997) for a formulation of the argument in terms of a mereological aggregate, instead of a conjunction.

<sup>55</sup> It is worth noting that positing infinitely many contingent facts, such that each fact explains the next fact in an explanatory sequence is not an obvious way out of the problem. Positing an infinitely descending explanatory sequence or tree seems to require a commitment to a gunky world, on the very plausible assumption that explanatory structure mirrors mereological structure. A similar problem would not arise with an infinitely long explanatory sequence or tree of *necessary* facts, because facts about mereological structure seem to be contingent (e.g. some particles happen to be arranged chair-wise, but they could have been arranged table-wise). Moreover, one could still ask what explains the *totality* of contingent facts (Cf. Dasgupta 2014).

fact can explain a contingent fact, and so the proponent of the PSR need not accept that all facts are necessary.<sup>56</sup>

There are others who have rejected Necessitation.<sup>57</sup> But no one has done it in quite *this* way. These other ways of rejecting Necessitation fall short of allowing that a necessary fact can explain a contingent fact (and so fall short of answering the objection to the PSR). What these other arguments against Necessitation instead show is that a fact may explain another without it being the case that every world in which the first fact obtains is also one in which the second obtains.

#### §6 THE NECESSITARIAN'S REVENGE

I end this chapter by addressing a response to my proposed answer to the objection that the PSR entails that the world could not have been otherwise. The response—call it ‘the Necessitarian’s Revenge’—goes as follows. If the PSR is true, then there are no unexplained facts. But rejecting Necessitation now allows for two kinds of unexplained fact:

- (1) A fact [p in w] explains a fact [p] in this world (call it ‘w’), but does not in any other possible world where [p] does not obtain. There is thus a fact that in some other possible world w’ [p in w] does not explain [p]. But what might explain such a fact?

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<sup>56</sup> For some other candidate responses to this objection, see Pruss (2006) and Dasgupta (2016). Pruss denies Necessitation on theological grounds, and Dasgupta offers a Leibnizian response on which we can still hold onto a relativized contingency while accepting the necessitarian conclusion.

<sup>57</sup> Cf. Leuenberger (2014), Skiles (2015).

- (2) A fact [p in w] explains a fact [p] in this this world (w), but does not explain [p] in some other world w', even though [p] obtains at w'. In that world, [p in w'] explains [p].<sup>58</sup> But why does [p in w'] rather than [p in w] explain [p] at w'?

There seems to be no plausible way of explaining these two facts. So (the objection goes), the proponent of the PSR cannot reject Necessitation.

I contend that this response is too quick. Multiple escape routes remain available for a proponent of the PSR. I will canvas two of them. First, as stated above, it is a consequence of rejecting Necessitation that explanatory claims are contingent, i.e. that [p in w] explains [p] in w, but not in all possible worlds, or even most of them. But a primary project of this chapter has been to show just how *every* contingent fact can be explained. We can thus break down the question 'In virtue what does [p in w] explain [p] in w but not in w'?' into two distinct questions: 'In virtue of what, in w, does [p in w] explain [p]?' and 'In virtue of what, in w' does [p in w] not explain [p] at w'?. Each of these questions is a question about a fact that obtains contingently, and can be given an explanation in the way that I have proposed. That is, each fact is explained by the following facts, respectively: [(p in w) explains (p)] in w] and [(p in w] does not explain (p)] in w'].

A second reply is this: any proponent of the PSR, regardless of whether they also embrace necessitarianism, has to explain away the apparent bruteness of certain facts. Moreover, it could turn out that apparently brute facts are apparently brute for different reasons. There is no reason to think that the apparently brute facts discussed above pose a

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<sup>58</sup> If a fact of this type obtains, then a principle related to Necessitation—call it 'Internality'—is also false. According to Internality, if one fact explains another, it is necessary that if both facts obtain, then the first explains the second. Internality is widely assumed to be true. Proponents of Internality include Rosen (2010), Bennett (2011), Fine (2012), deRosset (2013), Trogdon (2013), and Dasgupta (2014). See, however, Litland (2015) for a refutation of the principle.

*special problem* for the PSR, i.e. a problem not already posed by the more general problem of having to explain away apparently brute facts. The project of this chapter has been to show that one ought to reject Necessitation as a principle that governs metaphysical explanation, and that doing so makes available a response to the objection that the PSR entails that the world could not have been otherwise. It has *not* been the project of this chapter to answer every objection to the PSR.

### Chapter 3: Relativized Fundamentality

The universe is made of stories,  
not of atoms.

*Muriel Rukeyser*

This chapter is about how we ought to understand metaphysical fundamentality. According to one prevalent view, a fact or an entity is fundamental *simpliciter* just in case it is unexplained or ‘brute’, where the relevant sense of ‘unexplainedness’ is metaphysical.<sup>1</sup> On another view, a fact or entity may be fundamental even if it explains itself, or it is explained by a fact that it in turn explains.<sup>2</sup> On yet another view, a fact may be fundamental even if it is explained, as long it is both part of an explanatory sequence that converges onto a fundamental level, and has sufficient proximity to this level.<sup>3</sup> But despite these fairly significant differences, what all these accounts have in common is that each treats fundamentality as a property that facts or entities have *absolutely*. Call this shared commitment ‘absolutism’ about fundamentality. If fundamentality is a property that facts or

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<sup>1</sup> Those who hold this view include Bennett (2011), Rosen (2010), and Schaffer (2009), among others. I refer the reader to §1 for an explication of the notion of metaphysical explanation and a discussion of its relevance to talk of fundamentality.

<sup>2</sup> Anyone who thinks that at least some fundamental facts can explain themselves, or can explain one another, will be committed to this view. For challenges to the irreflexivity of explanation see Lowe (1998), Paseau (2010), Jenkins (2011), Fine (2012), and Bliss (2014). For challenges to both the irreflexivity and asymmetry of explanation (or for Wilson, dependence) see Wilson (2014) and Rodriguez-Pereyra (2015).

<sup>3</sup> See Wilson (2016, p.197). Fine (2001) also sketches a view on which each of a sequence of infinitely many explained facts is fundamental (which on Fine’s view just is to be part of ‘reality’). Fine argues: “Suppose, to take one kind of case, that Aristotle is right about the nature of water and that it is both indefinitely divisible and water through-and-through. Then it is plausible that any proposition about the location of a given body of water is grounded in some propositions about the location of smaller bodies of water (and in nothing else). The proposition that this body of water is here, in front of me, for example, will be grounded in the proposition that the one half is here, to the left, and the other half is there, to the right. But which of all these various propositions describing the location of water is real? We cannot say some are real and some not, since there is no basis upon which such a distinction might be made.” (Fine 2001, p. 27) Fine concludes that all the various propositions describing the location of water are real, or part of reality, where reality is a primitive notion.

entities have absolutely, a fact or entity cannot be both fundamental and not fundamental at the same world at the same time (though its fundamentality may vary across worlds, and perhaps even across times<sup>4</sup>).

My primary goal in this chapter is to argue that absolutism about fundamentality is false.<sup>5</sup> In its place, I defend my preferred alternative, *relativism* about fundamentality, according to which whether a fact or entity is fundamental is relative to a particular *way* of explaining the fact or entity. On this view, one and the same fact may be fundamental with respect to one way of being explained, but not fundamental with respect to another way of being explained. The relationship between an explanatory claim (a claim of the form ‘x explains y’) and a way of explaining is thus one-many. Multiple ways of explaining may, but need not, correspond to a single explanatory claim.

What is a way of explaining? Intuitively, ways of explaining are individuated by the kinds of explanatory mechanisms they involve. So, for example, the fact that there is a chair in the room can be explained *causally* by citing the fact that Jon brought the chair into the room, or it can be explained *metaphysically* by citing facts about particles arranged chair-wise. These two *ways* of explaining the same fact involve distinct explanatory mechanisms: one

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<sup>4</sup> Suppose, for example, that the fundamental facts at our world were such that they were slowly disintegrating over time (i.e. slowly failing to obtain). Once a fact disintegrates, it ceases to exist, and those facts that were explained by the fundamental fact become fundamental. In this way, a fact’s ‘fundamentality status’ might change over time.

<sup>5</sup> To say that absolutism about fundamentality is false is to reject the claim that fundamentality is an absolute property, i.e. one that is not instantiated relative to a way of explaining. Absolutism about fundamentality entails that a fact cannot be both fundamental and not fundamental at a world, at the same time. But as I will show, even a relativized view of fundamentality allows that in certain special cases, a fact cannot be both fundamental and not fundamental.

causal, and the other metaphysical.<sup>6</sup> But we might individuate ways of explaining even more finely by appealing to various distinct metaphysical explanatory mechanisms. In this chapter, I characterize distinct metaphysical explanatory mechanisms by reference to distinct sets of metaphysical dependence relations. For my purposes, a ‘metaphysical dependence relation’ is any relation that on its own, or along with other relations, makes available a metaphysical explanation.<sup>7</sup> Two ways of explaining are the same just in case they consist in the same set of metaphysical dependence relations (relations like constitution, composition, parthood, realization, determination, bundling, etc.). To get an intuitive feel for what it is for a way of explaining to consist in a set of metaphysical dependence relations, suppose, for example, that we were to claim that a given statue has a certain density because the clay that constitutes the statue possesses the same density. The metaphysical dependence relation in virtue of which this explanation is available is constitution (it is in virtue of this relation’s holding between the clay and the statue that we can explain why the statue has a given density). Or, to take another example, suppose that the existence of the set of natural numbers is explained by the existence of the natural numbers. This explanation is available because the ancestral of set-membership obtains between the relevant set and its members.

This chapter remains largely neutral with respect to which metaphysical dependence relations there are, or how many there are. It likewise remains neutral with respect to how many ways of explaining there are. As I will show, the thesis that fundamentality is not a

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<sup>6</sup> For the purposes of this example, I bracket disagreements over whether causal explanation just is a species of metaphysical explanation, or vice versa.

<sup>7</sup> This claim is not intended to suggest that nothing more required to make a particular metaphysical explanation available. Other conditions may need to obtain. But the obtaining of one or more metaphysical dependence relations is a necessary condition on metaphysical explanation.

property possessed absolutely has profound consequences for the current metaphysical landscape regardless of one's views about specific metaphysical dependence relations. I argue for relativism over absolutism about fundamentality by showing that relativism not only satisfies the core explanatory role of fundamentality, but also solves a set of puzzles that arise for absolutism. I proceed as follows. In §1, I present some relevant background information. In §2, I present two puzzles that arise on an absolutist view of fundamentality. In §3, I provide a detailed statement of relativism about fundamentality. In §4, I show how the view solves the two puzzles introduced in §2. In §5 I draw out some further consequences of my view. Finally, in §6, I show how adopting my relativized view of fundamentality allows even a proponent of the Principle of Sufficient Reason (henceforth 'PSR') who is committed to the irreflexivity and asymmetry of explanation to be committed to fundamental facts.

## **§1 PRELIMINARIES**

### **1.1 Metaphysical Explanation and Fundamentality**

Metaphysical explanation is the sort of explanation that tells us what makes it the case that a certain fact obtains. Consider, for example, the putative fact that names refer to objects. In virtue of what does a name—say, 'Benedict Cumberbatch'—refer to the particular object, Benedict Cumberbatch? According to one candidate answer this question—the 'Kripkean' answer—the name 'Benedict Cumberbatch' refers to Benedict Cumberbatch in virtue of the fact that there was an initial baptism (or dubbing) of Benedict Cumberbatch with the name in question, and the fact that an appropriate causal chain relates later uses of the name to the

initial baptism. These facts *metaphysically explain* our original fact by being that in virtue of which the original fact obtains.

Metaphysical explanation, along with the related notion of ‘ground’, has taken center stage in contemporary metaphysics. But metaphysical explanation (or ‘in-virtue-of explanation’) is hardly new to philosophy: demand for such an explanation is present in every ‘in virtue of what’ question. The sort of explanation demanded by an ‘in virtue of what’ question is generally taken to transcend particular human interests, perspectives or capacities: it is taken to be irrelevant if it turns out that no actual human beings can grasp the explanation. Thus, while the term ‘explanation’ has cognitive connotations, suggesting that there could be no explanation if there were no agents doing any explaining, ‘metaphysical explanation’ is a term of art. It applies to what an ideal subject—someone who knew all the facts and the relations that obtained between them—would be in a position to explain.

Following notation introduced by Rosen (2010), let us treat ‘[p]’ as a name for the fact that p, where ‘p’ expresses the proposition that p. For ease of exposition, I will speak as if metaphysical explanation is a relation that holds between those facts that serve as *explanans* and *explanandum*. Instead of ‘a subject who knows all facts and the dependence relations that hold between them could metaphysically explain [q] by reference to [p]’, I will simply say ‘[p] metaphysically explains [q]’. I will follow this convention throughout the chapter.

Fundamentality is a feature of entities (whether facts, objects, properties, or events) in the world. The fundamental has been variously characterized in the literature as that which

provides a minimal supervenience base for all other facts,<sup>8</sup> as that which God had to create to make the world the way it is,<sup>9</sup> and as that in virtue of which all other facts obtain.<sup>10</sup> The fundamental facts are often (but not always) taken to be those facts that do not depend on any other facts. Given the assumption that where there is dependence an explanation is available to the ideal agent (i.e. someone who knows all the facts and the dependence relations that obtain between them can explain why the fact obtains by reference to what it depends on), it follows that to say that a fundamental fact is unexplained is just to say that no explanation for the fact would be available to the ideal subject. Looking ahead, I will argue that this is wrong: a fundamental fact may be unexplained in one way, yet still be explainable (in another way) by an ideal agent.

I remain neutral in this chapter on the formal features of metaphysical explanation: it may be irreflexive (or not), transitive (or not), and so on.<sup>11</sup> Some insist that a single metaphysical dependence relation ('Grounding', with a big 'G'), with a unified set of formal features, serves as the worldly correlate of metaphysical explanation.<sup>12</sup> Others argue that Grounding just is, rather than underwrites, metaphysical explanation.<sup>13</sup> Opponents of Grounding argue that no single metaphysical dependence relation can play this role, and

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<sup>8</sup> Cf. Lewis (1986). Lewis says that there are just enough perfectly natural properties to "characterise things completely and without redundancy" (p. 60) Lewis's constraint has been widely interpreted as a modal constraint: the fundamental entities provide a minimal (i.e. non-redundant) supervenience base for all other facts. (Cf. Dorr and Hawthorne (2013) and Eddon (2013)).

<sup>9</sup> Cf. Burgess (2012), Wilson (2012), Barnes (2013) for some representative examples of authors who characterize the fundamental in this way.

<sup>10</sup> Cf. Fine (2001).

<sup>11</sup> Among the original proponents of Grounding are Fine (2001), Schaffer (2009), and Rosen (2010). Since these papers were published, proponents of Grounding have been divided over precisely which formal features the relation possesses.

<sup>12</sup> Cf. Schaffer (2012, 2015) and Audi (2012).

<sup>13</sup> Cf. Fine (2001), Litland (2013), and Dasgupta (2014). Wilson (2016) argues that proponents of such views are guilty of conflating metaphysical explanation—a partly epistemic notion—with metaphysical dependence.

instead deploy a (formally and substantively) diverse set of metaphysical dependence relations ('grounding relations', with a small 'g').<sup>14</sup> My proposal is consistent with each of the foregoing views about grounding and explanation. What I am here calling 'metaphysical dependence relations' coincide with the relations Bennett (2011, forthcoming) calls 'building relations' and Wilson (2014) calls 'small-g' grounding relations. But even views on which there is a single relation with a unified set of formal properties—Grounding—that backs metaphysical explanation, or those on which Grounding just is metaphysical explanation, have room to accommodate the claim that there are ways of explaining that consist in sets of one or more metaphysical dependence relations. Indeed, Schaffer (2015, forthcoming) argues that grounding claims are to be modeled against a background structure that includes information about particular dependence functions (such as the function that determines the mass of H<sub>2</sub>O from the masses of H and O).<sup>15</sup> Such functions are analogous to my preferred account in terms of sets of dependence relations in that they are both ways of deriving a nuanced explanatory structure that can make sense of 'ways of explaining'.<sup>16</sup> Fine (2001) likewise draws a distinction between nomological, natural, and metaphysical grounding, and there appears to be no in-principle reason why further distinctions—distinctions that appeal to distinct explanatory mechanisms cashed out in terms of metaphysical dependence relations—can't be drawn within the category of metaphysical grounding.<sup>17</sup>

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<sup>14</sup> Cf. Wilson (2014) and Koslicki (2015). Wilson argues against both the posited formal features of Grounding and the explanatory utility of positing a single relation to underwrite metaphysical explanation.

<sup>15</sup> Wilson (2017) develops a similar view.

<sup>16</sup> On my view, however, Schaffer does not go far enough, for he is still committed to an absolutist view of fundamentality.

<sup>17</sup> Litland (ms, 'Ways of Ground'), for example, develops an alternative way—one on which dependence relations are not determinates of Grounding—on which we could get a nuanced explanatory structure that can

## 1.2 Fundamental Facts vs. Fundamental Entities

There is a dispute in the literature over what the appropriate *relata* are for metaphysical explanation, and consequently over the sort of ontological item the property of fundamentality primarily attaches to (where ‘property’ picks out a thin notion on which the fact that an object has a given property need not metaphysically determine the way the object is). In particular, should we take *facts* to be fundamental (and the fundamentality of *entities*—objects and properties—that figure in facts to be somehow derivative), or should we take *entities* to be fundamental (and the *fundamentality* of facts to be derivative)?

Raven (2015, p. 6-7) provides a reason for taking facts to be prior. He argues that if we take the constituents of facts to be prior with respect to fundamentality, then on the assumption that the fundamental facts are just those that contain only fundamental entities, we get a counterexample of the following kind: if [p] and [q] contain only fundamental constituents, then the disjunctive fact [p or q] will also contain only fundamental constituents, and thus count as fundamental. But disjunctive facts are not fundamental.<sup>18</sup>

It will be a consequence of my view of fundamentality that the principle Raven presupposes—the principle that the fundamental facts are just those that contain only fundamental entities—is false. I instead endorse a relativized version of the principle: a fact that is fundamental relative to a way of explaining is just one whose constituents are fundamental relative to that way of explaining. But I also believe there is no good argument in favor of the absolutist version of the principle. One might perhaps argue that the principle

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allow for multiple ways of explaining, while being committed to a single Grounding relation (or sentential operator).

<sup>18</sup> We get a similar counterexample with conjunction: if [p] and [q] contain only fundamental constituents, then the conjunctive fact [p and q] will count as fundamental, but intuitively, it is not fundamental.

has intuitive support. Suppose that the fundamental facts are just those that God had to create to make the world the way it is. Then it seems natural to think that fundamental facts are made up of only fundamental constituents: if the constituents were not fundamental, they would be fixed by other constituents or facts, and God would not stick them into the world. But by stipulation, God *does* stick those constituents into the world (by sticking into the world the facts they are constituents of). However, this seems to involve a bad application of the metaphor.<sup>19</sup> Suppose, for example, that chairs were fundamental, and prior to their parts. Then God would have to put chairs into the world to make it the way it is. But—alas!—the parts of a chair come along with the chair, even though they would not be fundamental. There is indeed no reason (based on the theological metaphor) to think that the parts of a chair are fundamental in this case.<sup>20</sup> Given that nothing, in general, prevents fundamental entities from containing non-fundamental entities, an unprincipled exception for the constituents of fundamental facts is not warranted.<sup>21</sup> A relativized version of the principle is not susceptible to this type of objection: on this relativized account, the kind of fundamentality tracked by the God metaphor is only fundamentality relative to a particular way of being explained, and a fact (or entity) that is fundamental relative to that way of

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<sup>19</sup> If acceptable applications of the metaphor can't be distinguished from misapplications in a principled fashion, then perhaps the problem lies with the metaphor itself. I am inclined to this view, but will not defend it here.

<sup>20</sup> See also Schaffer (2009, p. 378) for a view on which the grounded is “latent” in the grounds, and Wilson (2016) for a view on which fundamental goings-on encode non-fundamental goings-on.

<sup>21</sup> Sider's ‘Purity’ principle—the principle according to which fundamental truths involve only fundamental notions—states a related constraint, but one at the level of representation (i.e. truths) rather than stuff in the world (i.e. facts or states of affairs). (See Sider 2012, p. 126). It is not obvious that the argument I have provided here against Raven's principle extends to Sider's principle. The God metaphor on which God puts the fundamental stuff into the world to make it the way it is need not apply to truths. Moreover, fundamental “notions” or words don't seem to have constituents in the way that objects (and perhaps properties) do.

explaining can have constituents that are also fundamental relative to that way of explaining, but not fundamental relative to a different way of explaining.<sup>22</sup>

On my view, we can make good sense of the fundamentality of each type of ontological item, without being forced to treat either one as fundamental in only a derivative sense. For convenience, I have opted to talk mostly in terms of fundamental facts, but nothing substantial hangs on this choice, and at times (when it is more natural), I will talk in terms of fundamental entities. How should we translate talk of fundamental entities into fact talk? One option is this: [x is fundamental] is equivalent to [the fact that x exists is fundamental], where the variable x ranges over entities. But perhaps the atomist who claims that atoms are fundamental and the priority monist who claims that the whole is fundamental each mean something more than just that the claim that the mere *existence* of their respective entities is fundamental. Perhaps they also mean to say that at least some facts of the form ‘x is  $\phi$ ’ are fundamental, where  $\phi$  ranges over properties instantiated by x.<sup>23</sup> Ultimately, when issues of translation between talk of entities and talk of facts eventually arise, I will be explicit about how I translate entity talk into fact talk.

In the next section, I show how puzzles arise on an absolutist view of fundamentality, and thereby motivate the need for a relativized conception.

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<sup>22</sup> There are good questions about which (if any) way of explaining is tracked by the God metaphor. It may even turn out that the metaphor does not capture our intuitive conception of the fundamental, and should be done away with.

<sup>23</sup> See for example, Fine (2009, p. 172): “Given the reality operator, we can now define an object to be real if, for some way the object might be, it is constitutive of reality that it is that way...Thus the numbers 1 and 2 would be real on this account, for example, if it constitutive of reality that 2 is greater than 1 and this chair would be real if it is constitutive of reality that it is over there; and, in general, the real objects are the objects *of* reality, those that figure in the facts by which reality is constituted.” For Fine, to be fundamental is to be part of reality. Fine’s suggestion in this passage seems to be that if an object x is real, then at least one fact of the form ‘x is F’ is part of reality.

## §2 PUZZLES FOR THE ABSOLUTIST VIEW

### 2.1 Parts and Properties

The first puzzle for an absolutist view of fundamentality concerns an atomist account that treats mereological atoms as fundamental. On the assumption that a mereological atom is not a bare particular, if a mereological atom is fundamental, then at least one fact of the form  $[a \text{ is } F]$  is fundamental (where  $F$  ranges over properties of atom  $a$ ). However, the fundamentality of such facts does not prevent them from being explained. For suppose that we are atomists who are also bundle-theorists. We think that atoms are mereological simples, but also think that all objects (atoms and composites) are just bundles of properties: properties held together by the ‘bundling relation’, where the bundling relation is not just the familiar (mereological) composition relation, but a distinct relation.<sup>24</sup> If we are bundle theorists, we say that even the existence of mereological simples is explained (via a bundling relation) by facts about the existence and distribution of certain properties. A view on which a simple may nevertheless be complex (albeit in a different way) goes back to at least Leibniz. Thus, in his *Monadology*, Leibniz says:

The Monad, of which we shall here speak, is nothing but a *simple* substance, which enters into compounds. By ‘simple’ is meant ‘without parts.’ (§1)

Yet the Monads must have some qualities, otherwise they would not even be existing things. (§8)

There is a clear sense in which monads are fundamental on Leibniz’s view: they are simples that compose other composite objects. Leibniz’s claim that if monads didn’t have some

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<sup>24</sup> Paul (2002, 2006, forthcoming) defends ‘mereological bundle theory, according to which the bundling relation is just the familiar composition relation. However, bundling is not historically taken to be the same relation as that of composition. Russell (1940) characterizes it as compresence, Bacon (1995) as concurrent tropes, Castaneda (1974) as the cosubstantiation of universals, and Campbell (1990) as compresent tropes.

qualities “they would not even be existing things”, taken literally, suggests that on Leibniz’s view there are no bare substrates (i.e. a substrate with no properties). This claim may in turn be interpreted in two distinct ways. On the first interpretation, a monad consists in a substrate with some instantiated properties. On the second interpretation, a monad is simply a bundle of properties. On neither interpretation are facts about properties had by the monad (e.g. the fact that  $m$  is  $F$ ) unexplained. On the first interpretation,  $[m$  is  $F]$  is explained by  $[m^*$  instantiates  $F]$ , where  $m^*$  is a bare substrate. On the second interpretation, it is explained by facts about how certain properties stand in a ‘bundling’ relation. My goal here has not been to provide an interpretation of Leibniz, but to show that a foundationalist view committed to atoms that either consist in bundles of properties or consist in substrates with properties has some pedigree, and is thus metaphysically serious as well as coherent. In my presentation of the puzzle I focus on bundle-theory, though the puzzle also arises on the view on which  $[m$  is  $F]$  is explained by  $[m^*$  instantiates  $F]$ , where  $m^*$  is a bare substrate. Now assuming that an atomist may also be a bundle theorist, consider the following inconsistent triad:

1. It is not the case that both  $[m$  is  $F]$  is fundamental and is not fundamental (from Absolutism about Fundamentality)
2.  $[m$  is  $F]$  is fundamental (because  $m$  is fundamental)
3.  $[m$  is  $F]$  is not fundamental (because it is explained by facts about the bundling of properties that make up  $m$ ).

One way out of the triad is to deny either (2) or (3). Rejecting (2), one might argue that  $[m$  is  $F]$  is not in fact fundamental. Let us refer to a claim about whether a fact is more or less

fundamental than another fact as a claim of ‘comparative fundamentality’.<sup>25</sup> That *m* is a mereological simple only tells us something about the comparative fundamentality of [*m* is *F*] with respect to facts about composites of monads. This is not, however, the way in which atomists—philosophers who think that the universe is fundamentally composed of simple atoms—talk. On the atomist view, the basic building blocks of reality are atoms (or monads, if you are Leibniz).

But more importantly, solving the puzzle by construing the atomist’s claim as a claim about comparative fundamentality fails, as long as we assume an absolutist view of fundamentality. For suppose that as atomists we thought that atoms were more fundamental than their composites, but as bundle-theorists we thought that all objects (atoms and composites) consist of bundles of properties. There is no reason to suppose that the properties that make up the composite must be less fundamental than the properties that make up the atom: they may be just as determinate as the properties that make up the atom. It is not built into this type of atomist view that the properties that make up the composite are less fundamental than those that make up the atom. Suppose that an atom was made-up of the properties *scarlet*, *round*, *extended*, *0.01 mg*, etc. and that it, along with other atoms, composed an object that was *scarlet*, *square*, *extended*, and *10kg*. Then there is no obvious sense in which the properties that bundle together to compose the composite are less fundamental than the properties that bundle together to compose the atoms.

There are two potential ways of making sense of the way in which, given the truth of bundle-theory, a composite may still be less fundamental than an atom (which in this context

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<sup>25</sup> Such claims are usually referred to as claims of ‘relative fundamentality’ in the literature, but this label is too close to ‘relativized fundamentality’, my preferred label for the view proposed in this chapter.

is just whatever minimal bundle a bundle theorist endorses). First, one might argue that the relation that ‘glues’ together the atoms into a composite is non-fundamental, and so the composite cannot be as fundamental as the atoms that compose it. But even on the assumption (which I repudiated in §1) that a fundamental entity cannot contain any non-fundamental entities, it is far from obvious that the relation that holds the atoms together has to be non-fundamental.

Second, composites may be taken to be less fundamental than atoms because they have their properties in a derivative way. Here’s an example of how a property may be had in a derivative way: a composite has the property of being 10kg *because* the atoms that compose the composite each have the property of being 0.01mg. The fact that the composite has the property of being 10kg is then less fundamental than the fact that every atom that makes up the composite has the property of being 0.01mg because the composite has the property only derivatively (because each atom has a different property—that of being 0.01mg as part of its bundle). However, the bundle theorist need not accept that any properties had by the composite are had in this derivative sense. They could say instead that the composite bundle contains being 10kg as a property *in the same way* that each atom contains being 0.01mg as a property: the property of being 10kg is part of its bundle. This move is particularly obvious in the case of ‘naïve realist’ properties like color: a scarlet composite object contains *being scarlet* as an element of its bundle in the same way that the atoms that compose it contain *being scarlet* as an element of their bundles.

One might deny that a mereological atomist could also be a bundle theorist. But absent further argument—argument that isn't generally provided by atomists—it appears dogmatic to rule out by fiat even the possibility of such a view.

The general form of argument that I have given here against the absolutist view of fundamentality can also be run against other claims about comparative fundamentality that presuppose an absolutist view. Wilson (2012), for example, argues that some determinables are more fundamental than determinates, but does not claim that determinables enter into *the* fundamental level: her argument there is concerned with a comparatively fundamental base. Now suppose that Wilson is right, and that some determinables are more fundamental than determinates. This will require that at least one fact about a determinable is more fundamental than a fact about a determinate of that determinable. Now suppose that one is also a class nominalist about properties, and so thinks that properties are just sets of objects. Then an absolutist view of fundamentality is hard pressed to make sense of the way in which some determinables could be more fundamental than determinates, because ultimately, both determinates and determinables are sets of objects. And there is moreover no guarantee that the relations of comparative fundamentality that may hold between the objects that are members of distinct sets hold in the same direction as the comparative fundamentality relationships between determinates and determinables. It is also possible that no comparative fundamentality relationships hold between objects, for all objects could be comparatively equifundamental (imagine a nihilist view on which there are only simples). Finally, to solve the problem by declaring, without argument, that a view about the

comparative fundamentality of determinables and determinates is inconsistent with class nominalism about properties appears overly dogmatic.

Going back to our inconsistent triad, one might perhaps instead reject claim (3) and maintain that the fact that *m* is *F* is fundamental. But on an absolutist view of fundamentality, the negation of (3) seems false. On the assumption that bundle theory is true, when God created the world, She did not have to stick in facts about *m* to make the world the way it is. She had only to stick in facts about properties. I will go on to show how relativized fundamentality resolves this puzzle. But first, in the next sub-section, I show that a second puzzle arises in a different context, one that concerns partial, as opposed to full explanation.

## §2.2 Metaphysical Emergence

While emergence is thought to arise in diverse areas, an important appeal to *strong* emergence concerns its status as a candidate answer to the question of how the mental depends on the physical.<sup>26</sup> But what is strong metaphysical emergentism? Let us say that a property is ‘strongly metaphysically emergent’ just in case it is ‘over and above’ its base-level properties, yet nevertheless synchronically dependent (where this dependence may hold with metaphysical necessity) on those base-level properties.<sup>27</sup>

In the context of strong emergence, there are two broad ways in which ‘over and aboveness’ gets cashed out. The first is epistemological, the second metaphysical. On the

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<sup>26</sup> For instance, Chalmers (2006) argues that the phenomenon of consciousness is a clear case of strong emergence.

<sup>27</sup> Cf. Wilson (2014, p. 543). See Wilson (2015) for a general schema that distinguishes strong emergence from so-called ‘weak’ emergence.

first way of understanding ‘over and above’, a property is strongly emergent when facts about the property are not deducible, even in principle, from facts about base-level properties.<sup>28</sup> On the second, to say that an emergent property is ‘over and above’ base-level properties is to say that such properties are not ‘fixed’ by base-level properties, where the relevant notion of ‘fixing’ is not merely that of necessary covariance or supervenience, but metaphysical determination. These emergent properties are generally taken to be metaphysically fundamental.<sup>29</sup> One way of cashing out precisely what it might mean for an emergent property to be over and above its base-level properties is in terms of new causal powers. On Wilson’s (2015) account, for instance, a strongly emergent property has a causal power not identical to any causal power had by the base-level feature upon which it depends, on a given occasion.

There is a good question about how the metaphysical sense of ‘over and above’ relates to the epistemic sense. It may be the case that strongly metaphysically emergent facts are of an entirely different sort compared to strongly epistemically emergent facts. Or it could be the case that the lack of deducibility that characterizes strong epistemic emergence is symptomatic of strong metaphysical emergence: that a fact is metaphysically emergent *explains* why it is also epistemically emergent. However, since strong *metaphysical* emergence is enough to problematize absolutism about fundamentality, I do not take a stand here with respect to the relationship between epistemic emergence and metaphysical emergence. In continuity with the literature on emergence, I take the label ‘emergent’ to attach primarily to

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<sup>28</sup> Cf. Chalmers (2006).

<sup>29</sup> Cf. McLaughlin (1992), Wilson (1999, 2014, 2015), Barnes (2012).

properties. Facts are then derivatively emergent just in case they are about, or involve, emergent properties.<sup>30</sup>

The phenomenon of strong metaphysical emergence (henceforth simply ‘emergence’) generates a puzzle in the following way. Emergent facts are generally taken to be fundamental. But emergent facts—despite being fundamental—nevertheless partially (metaphysically) depend on base-level facts (where this dependence may be necessitating).<sup>31</sup> If the dependence in question is metaphysical, it is hard to see how it would not also be metaphysically explanatory (albeit only partially), and so emergent facts are partially explained. While explained facts can turn out to be fundamental if they explain themselves, or are explained by other facts that they in turn explain, neither sort of explanation is available for only partially explained emergent facts. These considerations suggest that emergent facts are not fundamental.

Putting all of this together, a proponent of the absolutist account of fundamentality must reject one of the following jointly inconsistent claims:

- 1) A fact cannot be both fundamental and not fundamental
- 2) Emergent facts are fundamental
- 3) Emergent facts are not fundamental

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<sup>30</sup> By this criterion, emergent laws will count as emergent facts, for they contain emergent properties as constituents.

<sup>31</sup> Cf. Barnes (2012), McLaughlin (1992), Wilson (2005, 2015). Wilson also argues that given certain background commitments, the dependence in question holds with metaphysical, rather than merely natural necessity.

This puzzle (like the one discussed in the previous sub-section) arises for both proponents of capital-G Grounding and proponents of small-g grounding, as long they are committed to an absolutist account of fundamentality.

One way out of the inconsistent triad—the way of the conceptual chauvinist—is to argue that an account of what fundamentality consists in need not accommodate every first-order commitment about what is fundamental (and so need not accommodate the commitments of strong emergentism). In particular, one might ask why the right account of the fundamental has to be such that it accommodates the commitments of any intelligible theory about which facts are fundamental. Why not instead say that we have equivocated between two senses of ‘fundamental’: *fundamental*<sub>1</sub> (i.e. the fundamental as the ultimate explainer) and *fundamental*<sub>2</sub> (i.e. the sense in which emergent facts are fundamental)?

The trouble with this response is that it begs the question against the emergentist. The emergentist’s claim depends on more than the mere fact that some philosophers apply the term ‘fundamental’ to emergent facts. For the emergentist, emergent facts are fundamental because they are over and above base-level facts (and Wilson’s 2015 account of emergent facts in terms of new causal powers tells us precisely *why* they are over and above these facts). It is particularly difficult for a proponent of ‘big-G’ Grounding to deny that emergent facts are fundamental. For such a theorist, if [p] Grounds [q], the fact [q] is nothing over and above [p]. But if one accepts that emergent facts are over and above base-level facts, they are, by the theorist’s own lights, ungrounded, and thus fundamental.<sup>32</sup>

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<sup>32</sup> Cf. Wilson (2014)

One might simply insist that no facts that are even partially metaphysically dependent on other facts—even if they are over and above those facts—can be fundamental, and so emergent facts are not fundamental. But such a restriction on our concept of the fundamental appears to be arbitrary. Unless one assumes that the fundamental facts are by definition those that are fully unexplained, there seems to be no reason to think that emergent facts are not fundamental. And we have reason to think that the fundamental facts are not by definition fully unexplained facts: the problem posed by metaphysical emergence shows that it is not a conceptual truth that the fundamental facts are just the fully unexplained facts.

The problem with arbitrarily restricting the concept of fundamentality such that it undermines the commitments of metaphysical theories to the fundamentality of certain facts is a problem that follows from a general concern about the ecumenicality of a second-order theory—a theory *about* a tool of metaphysical theorizing—with respect to first-order theories.<sup>33</sup> My view is that a theory of fundamentality ought to be such that it accommodates every intelligible first-order commitment about what is fundamental.<sup>34</sup> Underlying this concern is the thought that our concept of fundamentality is a basic tool for metaphysical theorizing, and as such, ought to remain neutral with respect to specific commitments about which facts are fundamental.

Of course, one might still have reservations both about whether such neutrality is achievable, and about whether it is valuable. First, one might be suspicious about whether

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<sup>33</sup> See my chapter 2, ‘The Contingency of Explanation’, for a more thorough defense of the ecumenicality constraint discussed here.

<sup>34</sup> Fine (2013) suggests a similar constraint on our account of fundamentality.

this sort of ecumenicality is achievable without rendering the relevant second-order theory vacuous. If it is indeed a criterion for the correct conception of fundamentality that it ought to remain neutral with respect to first-order commitments about fundamentality, there seems to be no reason to restrict the relevant first-order commitments to the metaphysical views currently in town, rather than *all possible* first-order commitments about fundamentality. But then it seems highly unlikely that anything non-vacuous would be left to say about the concept of fundamentality.

In response, I argue that it is simply unclear whether a second-order theory that strives to remain neutral with respect to first-order theories would be rendered vacuous, and this is because the sort of first-order commitments that ought to be accommodated by a theory of the fundamental need to be such that they do the relevant explanatory work. Fundamental facts—whatever they are—are at minimum those facts that provide an unproblematic stopping point for explanation. Thus, it is not the case that any first-order theory that calls some facts ‘fundamental’ is one that should be accommodated by a theory of the fundamental: only those theories on which the fundamental facts play (at least) our designated explanatory role ought to be accommodated. Given this constraint, it seems unlikely that a theory of the fundamental would be rendered vacuous in striving to remain ecumenical.

A second worry concerns the value of the ecumenicality of a second-order theory of the fundamental with respect to a first-order theory. The worry is that it is unclear whether ecumenicality with respect to first-order theories has more than (merely) pragmatic value. That is, the best reason for thinking that the tools for metaphysical theorizing ought to be

non-committal with respect to first-order theories is that we have not yet reached the end of metaphysical inquiry, and that there is thus reason to remain as neutral as possible with respect to first-order commitments before developing a second-order theory *about* those first-order commitments. But such a reason is merely pragmatic: it suggests that we are more likely to arrive at the correct theory of the fundamental if we remain neutral with respect to first-order commitments about the fundamental, because as of now, we do not yet know which first-order theory is correct.

Despite this worry, I remain convinced that the value of ecumenicality is not merely pragmatic. For in giving an account of the fundamental, one is attempting to provide a criterion for fundamentality, and ecumenicality with respect to first-order commitments seems to be at least a necessary condition for arriving at such a criterion. Moreover, even if the value of ecumenicality *was* merely pragmatic, the ecumenicality constraint on second-order theories seems warranted. In the next section, I present my relativized view of fundamentality in detail. I then show how my view solves the two puzzles canvassed above.

### §3 RELATIVIZING FUNDAMENTALITY

On my proposed relativized account of fundamentality, whether a fact counts as fundamental is relative to a way of being explained. As mentioned at the beginning of the chapter, each way of explaining is a set of metaphysical dependence relations. This set may contain just one metaphysical dependence relation or multiple such relations. Depending on the particular metaphysical dependence relation, entities of any ontological category can serve as relata of a metaphysical dependence relation. Composition, for example, takes objects (and perhaps properties) as relata, whereas conjoining—the worldly correlate of

conjunction—takes facts as relata. Some metaphysical dependence relations are many-one (like composition), whereas others are one-one (like constitution).<sup>35</sup> Others may be many-many or one-many. One fact then explains another relative to a set *S* of metaphysical dependence relations just in case either the facts that make-up the *explanans* and the *explanandum* or their respective constituents stand in the metaphysical dependence relations that are members of *S*.

On my relativized view, the claim, ‘[ $\phi$ ] is fundamental’, where  $\phi$  is a variable that ranges over facts, is true or false only relative to a way of explaining. In particular, a claim of the form ‘[ $\phi$ ] is fundamental’ is true only if [ $\phi$ ] cannot be explained in the relevant way. Such claims may therefore best be read as involving not a one-place predicate, but a two-place predicate: ‘ $\phi$  is fundamental relative to  $\Delta$ ’, where  $\Delta$  ranges over ways of explaining.

It is not enough for the obtaining of a metaphysical dependence relation between [*p*] and [*q*], or between the constituents of [*p*] and [*q*], that the relevant facts (or constituents) obtain (or exist). It is not enough because there are cases where the relevant facts (or constituents of facts) obtain (or exist) in the absence of a dependence relation. Consider, for example, [The wine is red and it is raining] and [The wine is scarlet and it is raining]. Then—on the assumption that determinables metaphysically depend on determinates—a metaphysical dependence relation obtains between a constituent of the first fact and a constituent of the second. However, the first fact is not explained by the second: [the wine is red and it is raining] is explained by [the wine is red] and [it is raining], which are explained by further facts. But [the wine is scarlet and it is raining] cannot figure in the explanatory

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<sup>35</sup> Cf. Bennett (2011, forthcoming)

sequence at all (unless we give up on the assumption that conjunctive facts are explained by their conjuncts). There is thus a need for principles that specify the conditions under which entities stand in metaphysical dependence relations to other entities for every dependence relation, just as van Inwagen’s ‘special composition question’ demands a specification of conditions under which some objects compose another object: the mere existence of some objects is not enough for composition.<sup>36</sup> The task of specifying such principles—call them ‘metaphysical laws’—goes beyond the scope of this chapter. For the purposes of showing that an absolutist view of fundamentality has gone wrong, all we require is grasp of the notion of a ‘way of explaining’.<sup>37</sup>

#### **§4 RELATIVIZED FUNDAMENTALITY TO THE RESCUE**

Again, on my relativized view of fundamentality, to say that a fact is fundamental relative to a way of explaining is just to say that it cannot be explained in that way. In this section I show that my relativized view can solve those problems that in §2 I argued arise for the absolutist view of fundamentality.

##### *Puzzle 1: Parts and Properties*

I propose that the right way to dodge the inconsistent triad in section 2.1 is to reject claim (1), the claim that fundamentality is an absolute property. Once we do so, we can see how an alternative account of fundamentality—such as my relativized account—can solve the puzzle. My view can accommodate the claim that [m is F] is a fundamental fact: it is

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<sup>36</sup> See van Inwagen (1990).

<sup>37</sup> See Wilsch (2016) for a deductive-nomological account of metaphysical explanation that gives a characterization of such metaphysical laws.

fundamental relative to a particular way of explaining, which in this case consists in the composition relation. But the fact is also *not* fundamental relative to another way of explaining, which in this case consists in the bundling relation.

A relativized conception of fundamentality can also make sense of the way in which simples are more fundamental than composites on an atomist view: they are more fundamental than composites relative to a way of explaining that consists in the part-whole relation. Absent a relativized conception of fundamentality, there is no clear sense in which simples are more fundamental than composites.<sup>38</sup> The claim that some determinables are more basic than their determinates can also be rescued by adopting a relativized conception of fundamentality. We can then say that some determinables are more fundamental than determinates relative to a way of explaining, namely, the set that has the determinate-determinable relation as its member.

I have argued that an account on which fundamentality is relativized solves a kind of puzzle that arises on an absolutist view. On this type of puzzle, a fact is both fundamental and not fundamental: fundamental because it is, in a sense, unexplained, but not fundamental because it is, in a sense, fully explained. But no fact can be both fundamental and not fundamental. My relativized account of fundamentality solves the puzzle by showing how the inconsistent claims can all be accommodated.

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<sup>38</sup> It is worth noting that there is nothing special about mereological atomism, such that it in particular gives rise to our inconsistent triad. The triad also arises with respect to the priority monism of Schaffer (2010). On Schaffer's view, the cosmos or the One is fundamental. But unless the whole is a bare substrate, the whole has properties. Given the assumption that bundle theory is true, a similar puzzle then arises.

### *Puzzle 2: Metaphysical Emergence*

My relativized account of fundamentality solves the second puzzle in the following way. An emergent fact is fundamental with respect to a building relation  $R_1$ , but not fundamental with respect to a building relation  $R_2$ . Let us say that  $R_1$  is a relation that determines what causal powers a property has on the basis of the instantiation of lower-level properties, where a result of such determination is that all causal powers of the property are identical to the causal powers had by the base-level feature upon which it depends, on a given occasion. An emergent fact is not explained relative to the way of explaining that consists in  $R_1$ , and is thus fundamental.

But the fact may be explained relative to a different way of explaining that consists in  $R_2$ . Consider the following example. The property of being conscious has certain causal powers. On a strong emergentist view, the causal powers of this property include token powers not possessed by base-level features. But the property is still dependent on base-level properties, which accounts for why the property is emergent, as opposed to an ‘orphan’, i.e. a property that does not depend on any others. Let  $R_2$  be the particular relation in virtue of which this dependence holds. Then an emergent fact is not fundamental relative to the way of explaining that consists in  $R_2$ . In this way, an emergent fact is both fundamental relative to a way of explaining, and not fundamental relative to another way of explaining.

There are additional ways in which an emergent fact can be explained. For example, on the assumption that a higher order theory of consciousness is true, the (stipulated) emergent fact that mental state  $M$  is conscious may be explained by the fact that there exists another mental state  $M'$  that represents  $M$ , where the way of explaining consists in the

relation involved in representing mental state M.<sup>39</sup> Also, on the assumption that conjunctive facts are explained by their conjuncts, and disjunctive facts by their true disjuncts, conjunctive emergent facts will be explained relative to the conjoining relation, and disjunctive emergent facts relative to the disjoining relation.

One might worry that my solution to the puzzle posed by emergence gets rid of the sense in which emergent facts *partially depend* on base-level facts. But unless this partial dependence is essential to what emergence is (and extant characterizations of emergence do not suggest that it is), there are theoretical advantages to doing away with the claim that emergent facts partially depend on base-level facts. The most straightforward way of making sense of partial dependence is in terms of full dependence: an entity x partially depends on entity y just in case there is an entity z that does not overlap with y, and x fully depends on y and z taken together. But emergent facts lack even a possible full dependence base, and so there is no clear sense in which they only partially depend on base-level facts. One could deny that partial dependence has to be understood in terms of full dependence, and instead posit a specific metaphysical dependence relation that accounts for the way in which emergent facts partially depend on base-level facts.<sup>40</sup> But it is *prima facie* unclear how any account that conceptually divorces partial from full dependence captures the intuitive sense in which a fact only partially depends on other facts.

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<sup>39</sup> Some (but not all) higher-order consciousness views are inconsistent with emergentism.

<sup>40</sup> According to Wilson, (personal communication) saying that emergent facts partially depend on (or are partially grounded in) base-level facts is a problem for big-G Grounders in particular, for these theorists define partial Grounding in terms of full Grounding. By contrast, those committed to only 'small-g' grounding relations can posit a metaphysical relation whereby strongly emergent features incorporate, yet also transcend, the relevant base feature. According to Wilson, small-g theorists can deny that strong emergence obeys weak supplementation.

## §5 RELATIVIZED FUNDAMENTALITY AND EXPLANATORY STRUCTURE

In this section I illustrate three possible explanatory structures—structures hard to accommodate on an absolutist view of fundamentality—on which a fact may be both fundamental with respect to a way of explaining, and not fundamental with respect to another way of explaining, and draw out some consequences of a relativized view of fundamentality.

### *Structure 1: Distinct Explanations, Distinct Ways of Explaining*

The first explanatory structure is one on which two or more facts each independently, completely explain a given fact in distinct ways: [q] explains [p] relative to  $\Delta_1$ , and [r] explains [p] relative to  $\Delta_2$ . Ways of explaining consist in sets of dependence relations, and so, for convenience, in the examples that follow I will simply specify the relevant relation(s). For an illustration of this first explanatory structure, suppose that the Statue of Liberty is taller than Michelangelo's David. This fact may be completely explained in two distinct ways: (1) by the fact that the object composed of  $P_1, P_2, P_3 \dots P_n$  arranged in shape L is taller than Michelangelo's David, where ' $P_n$ ' denotes a proper part of the Statue of Liberty and 'L' picks out the shape of the statue; (2) by the fact that the statue of liberty is taller than the D-shaped lump of clay, where 'D' picks out the shape of Michelangelo's David. The first explanation holds relative to the relation of composition, whereas the second holds relative to the relation of constitution.

Now suppose that the Statue of Liberty and Michelangelo's David were both mereological simples. Then the fact that the Statue of Liberty is taller than Michelangelo's David would not have an explanation available relative to composition. On a relativized view

of fundamentality, the fact would thus be fundamental with respect to the way of explaining that consists in a set whose member is the composition relation.

While a fundamental fact, on my view, is one that is unexplained relative to a way of explaining, the view does not preclude that a fundamental fact could explain itself. A given fact may explain itself while being fundamental relative to some way of explaining. But unlike fundamental facts that are not explained reflexively, a fundamental fact that explains itself (relative to some way of explaining) cannot be fundamental relative to every way of explaining. What is crucial, however, is that all fundamental facts are unexplained relative to some way of explaining.

Of course, one might reasonably worry that my view over-generates fundamental facts.<sup>41</sup> Every fact, it seems, is going to be unexplained relative to some or other way of explaining. Yet surely—continues the objector—not every fact is fundamental. In response, I contend that much of the time when we consider what counts as fundamental, our focus is restricted to not only a particular way of explaining, but to those facts which arguably explain other facts relative to that way of explaining. This restricted focus permits us to ignore what we might call ‘degenerately fundamental facts’, namely those that, relative to a way of explaining, cannot explain other facts (e.g. numbers arguably cannot physically compose other objects). Yet ignoring these facts does not make them any less fundamental. They are simply fundamental in a particularly boring respect (compare Lewis’s (1983, 1986) account of properties that makes the general category of property very inclusive, yet distinguishes a special subclass of elite ‘natural’ properties to serve various explanatory roles). I therefore

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<sup>41</sup> Thanks to Jessica Wilson for pressing this objection.

accept the intuitions that drive the initial objection, yet ultimately explain them away by appeal to a distinction between degenerately and non-degenerately fundamental facts.

### *Comparative Fundamentality*

Suppose now that [p] is fundamental with respect to  $\Delta_C$ , where  $\Delta_C$  is the way of explaining that consists in a set whose member is the composition relation, but is explained by [q] relative to a different way of explaining. It could then turn out that [q] is also fundamental with respect to  $\Delta_C$ . Here's an example of such a case. Suppose that the Statue of Liberty is a mereological simple. Then [the Statue of Liberty has mass] would be fundamental relative to  $\Delta_C$ . But on the assumption that the determinable *mass* metaphysically depends on its determinates, it would be explained by [the Statue of Liberty has a mass of 225 tons]. This latter fact is also fundamental with respect to  $\Delta_C$ . A fact may thus be 'further down' on an explanatory sequence without being more fundamental relative to  $\Delta_C$ . As mentioned earlier, let us refer to a claim about whether a fact is more or less fundamental than another fact as a claim of 'comparative fundamentality'. Then claims of comparative fundamentality, like claims of fundamentality, are also true only relative to a way of explaining. A fact that is further down on an explanatory sequence is more fundamental than the fact that it explains relative to one way of being explained, but need not be fundamental relative to any other way of being explained.

Moreover, claims of comparative fundamentality can be made only within a segment of an explanatory sequence that is unified by a way of explaining. The explanatory sequence [p]  $\rightarrow$  [q]  $\rightarrow$  [r]  $\rightarrow$  [s], where ' $\rightarrow$ ' means *explains*, is unified by a way of explaining  $\Delta_1$  just in

case each member of the sequence is explained relative to  $\Delta_1$ . Then [q] is more fundamental than [p] relative to  $\Delta_1$ , and [r] is more fundamental than [q] relative to  $\Delta_1$ , and [s] is more fundamental than [r] relative to  $\Delta_1$ . Now suppose that [s] not explained relative to  $\Delta_1$  (and is thus fundamental relative to  $\Delta_1$ ), but is explained by [t] relative to  $\Delta_2$ , which is explained by [u] relative to  $\Delta_1$ . Then, even though [t] is explained by [u] relative to  $\Delta_1$ , [u] is not more fundamental than [s], because [u] and [s] are not on an explanatory chain unified by  $\Delta_1$ . Two or more facts on the same explanatory sequence may thus be fundamental relative to the same way of explaining as long as the explanatory sequence is not unified by that way of explaining.

### *Structure 2: Complex Explanation*

Could a fact explain another in two distinct ways? Here is how such a case might potentially go. Suppose that [the blanket is red] is explained by [P<sub>1</sub> is scarlet], [P<sub>2</sub> is scarlet], [P<sub>3</sub> is scarlet], and so on (where 'P<sub>n</sub>' picks out a proper part of the blanket). Then on the assumption that the proper parts of material objects are more basic than the wholes they compose, and determinates are more basic than determinables, [P<sub>1</sub> is scarlet], [P<sub>2</sub> is scarlet], [P<sub>3</sub> is scarlet], and so on can be construed as explaining [the blanket is red] in two distinct ways: they explain it relative to the part-whole relation, and they explain it relative to the determinate-determinable relation. Each way of being explained is independent of the other: an explanatory relation would hold if parts were not more basic than the wholes they composed, and it would hold if determinates were not more basic than their determinables, as long as the other dependence relation obtained.

But I argue that this case can (and should) be re-construed not as involving one explanatory pathway that includes two different ways of explaining, but as involving one explanatory pathway, and one way of explaining (where an explanatory pathway is a continuous explanatory sequence). It is natural to think that every explanatory pathway must correspond to a single way of explaining. To see why, consider the following case. Suppose that Daphne the dancer specializes in a fusion of swing and salsa. Swing and salsa are two distinct styles of dancing, but is Daphne dancing in two distinct ways when she dances a fusion? The intuitive answer is ‘no’: she is dancing in one way, a way that involves two distinct styles. Likewise, a case on which a fact [p] is explained by [q] relative to one dependence relation, and is also explained by [q] relative to another dependence relation, is better construed as one on which [p] is explained by [q] relative to just one way of explaining, which consists in a set of relations (i.e.  $(R_1, R_2)$ ).

*Structure 3: Distinct Explanations, Same Way of Explaining*

A fact may be explained in the *same way* but through distinct explanatory pathways. Consider the fact that Michaelangelo’s David and Rodin’s The Thinker are iconic sculptures. This fact is fully explained by [The D-shaped lump of clay and Rodin’s The Thinker are iconic sculptures]. But it is also fully explained by [Michaelangelo’s David and the T-shaped lump of clay are iconic sculptures]. In both cases, the metaphysical dependence relation is the same: composition.

Unlike the previous explanatory structure, this structure does not allow a fact to be fundamental relative to one way of explaining, but not fundamental relative to another. Consider again the fact that the Statue of Liberty is taller than Michelangelo’s David.

Suppose both that the Statue of Liberty is a mereological simple, and that Michelangelo's David is a mereological composite. It is tempting to say that the original fact is fundamental with respect to composition, yet also explained (and thus not fundamental) with respect to composition. But this is a contradiction. The right way to describe the case is instead as one in which the fact is not fundamental relative to composition, because the fact does not lack an explanation relative to composition.

This view does not require that any dependence relations actually hold between facts. If there were facts but no dependence relations holding between them, then every fact would be fundamental with respect to every dependence relation. But even with an abundance of metaphysical dependent relations, fundamental facts are prevalent. For example, all atomic facts (i.e. facts that are not conjunctions) will be fundamental relative to the conjoining relation.

Finally, even a relativized view of fundamentality allows that, under certain conditions, a fact cannot be both fundamental and not fundamental. This can happen, first, if there is just one metaphysical dependence relation. If there were only one metaphysical dependence relation, we would not get a structure on which a fact was both fundamental with respect to one relation, and not fundamental relative to a different relation. But on the assumption that we have a good grasp of what metaphysical dependence relations are, it does seem obvious that there are at least two. Second, this may happen in cases where the dependence relation that figures into the way of explaining is capital-G Grounding. If Grounding is a determinable relation such that every small-g grounding relation is a determinate of that relation (itself a controversial assumption), a fact that is fundamental

relative to Grounding cannot be explained in any other way (just as an object that isn't colored cannot be any particular shade), and so a fact that is fundamental relative to Grounding cannot be both fundamental and not fundamental. Yet if Grounding is a determinable—as this line of reasoning requires—it likely would not qualify as a metaphysical dependence relation. For compare a more familiar determinable/determinable case: color is a determinable of specific colors (red, blue, etc.), but it is not itself a color. Similarly, Grounding may have determinates that are metaphysical dependence relations, yet still not itself count as a metaphysical dependence relation. Moreover, even if Grounding were a metaphysical dependence relation, we can put aside facts that are fundamental relative to Grounding as a special case. Third, a fact that is unexplained relative to every way of explaining cannot be both fundamental and not fundamental: in order to not be fundamental, it has to be explained relative to at least one way of explaining.

In this section, I showed how my view, in addition to solving the problems raised in the second section, also captures at least three distinct kinds of explanatory structure. In the next section, I discuss the work that the concept of fundamentality does for us, and why even a proponent of the PSR ought to be committed to facts that do this theoretical work. I show both that a relativized conception of fundamentality captures the work we want fundamentality to do, and that it allows even a proponent of the PSR to be committed to fundamental facts.

## **§6 FUNDAMENTALITY AND THE PSR**

According to the Principle of Sufficient Reason, everything has an explanation. If we take 'everything' to range over facts, and 'explanation' to pick out metaphysical explanation, then

we get a version of the PSR according to which every fact is metaphysically explained. In the first chapter, I showed how this version of the PSR is close to the version that Spinoza, and perhaps even Leibniz, had in mind. However, a commitment to the PSR is generally taken to be in tension with a commitment to fundamental facts: on most accounts of fundamentality, at least some (if not all) fundamental facts are unexplained facts. But if the PSR is true, there are no unexplained facts.

The claim that there are no unexplained facts can be accommodated by giving up the irreflexivity or asymmetry of explanation for fundamental facts. Thus, if the fundamental facts were such that they were mutually dependent or self-explaining, then the proponent of the PSR could accept fundamental facts.<sup>42</sup> But absent an independent argument for positing a self-explaining fact or entity (such as God), or mutually explaining facts or entities, such a move seems *ad hoc*. Even if it turned out that as a rule, explanation was not always irreflexive or asymmetric, one would have to show that the fundamental facts *in particular* were exceptions to irreflexivity and asymmetry. Absent such an argument, it would seem that either the PSR is true, or there are no fundamental facts, but not both.<sup>43</sup>

But why should a proponent of the PSR care about fundamental facts to begin with? While some proponents of the PSR would be quite happy to do away with any kind of commitment to the existence of fundamental facts, I will argue that even a proponent of the

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<sup>42</sup> Both Leibniz and Spinoza, for example, were committed to God as the ultimate explainer.

<sup>43</sup> An alternative way to be committed to both the PSR and fundamental facts is to be committed to facts that are not 'apt for explanation' (Cf. Dasgupta (2016)). I find this solution unsatisfying because it essentially does away with a commitment to the PSR, understood as the unrestricted claim that *every* fact has an explanation. On Dasgupta's view, only facts that are apt for explanation have an explanation.

PSR should care about fundamentality and about accommodating some fundamental facts (though not unexplained facts).

First, even a proponent of the PSR—someone who denies that any facts are unexplained—would want to say that some facts are more fundamental (or basic) than others. For example, even a proponent of the PSR might want to say that facts about a building are less fundamental than facts about the materials (bricks, concrete, etc.) that constitute the building. But at least one way to get a priority ordering among facts would be to see how ‘far’ a particular fact was from *the* fundamental level in an explanatory sequence. If [a] is further away than [b] in the sequence, then [b] would be more basic than [a]. This way of determining claims about comparative fundamentality takes our concept of fundamentality to be more basic than our concept of comparative fundamentality. This view is particularly plausible if metaphysical dependence relations (that is, relations like parthood, constitution, composition, etc.) do not have a direction built into them. Though building always has an ‘upwards’ direction from the more fundamental to the less fundamental, building could take place in the whole-to-part direction, rather than the part-to-whole direction.<sup>44</sup> Thus, unless we simply stipulate a direction for every relevant building or dependence relation, something external to the dependence relation is required to determine facts about relative fundamentality. And simply stipulating a direction for every dependence relation is methodologically problematic because one might have thought that disagreements over whether a whole is more fundamental than its parts (or vice versa), and whether

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<sup>44</sup> The term ‘building’ strongly suggests a picture on which smaller things come together to make a bigger thing, which makes it odd to talk about ‘building’ in the whole-to-part direction. This is, however, an unfortunate connotation of the term ‘build’.

determinables are more fundamental than determinates (or vice versa), are disagreements precisely over the directionality of the dependence relation in question (e.g. whether it is part-to-whole or whole-to-part, in the case of composition). Philosophers who subscribe to one ‘big-G’ Grounding relation with a unified set of formal properties generally hold that the Grounding relation specifies the directionality of explanation. But a commitment to such a relation is hardly universal, and there is substantive disagreement over whether a commitment to such a relation is even warranted.<sup>45</sup>

The alternative to simply stipulating a direction of comparative fundamentality (either by stipulating a relation that specifies it or by directly stipulating which facts are more fundamental than which other facts) is to determine facts about comparative fundamentality by reference to a fundamental level.<sup>46</sup> For instance, given any explanatory sequence that bottoms out in one or more fundamental facts, we can determine which facts are more or less fundamental *in that sequence* by counting the number of ‘links’ in the explanatory sequence between the relevant facts. For example, if there are four links between [p] and the fundamental facts that ultimately explain it, and six links between [q] and the fundamental facts, then [p] is more fundamental than [q], as long as [p] and [q] both figure in the same explanatory sequence. But if a crucial role played by the fundamental facts is to determine an ordering of comparative fundamentality among all other non-fundamental facts, then the proponent of the PSR is in trouble.

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<sup>45</sup> See Wilson (2014) for arguments against both the claim that a single Grounding relation has a unified set of formal properties and the utility of positing a single Grounding relation.

<sup>46</sup> Cf. Wilson (2014, 2016)

On my proposed relativized account of fundamentality, even the proponent of the PSR can appeal to fundamental facts to provide a priority ordering among facts. Even if the PSR were true and every fact was unexplained, a fact could still be fundamental with respect to a way of explaining. The proponent of the PSR would be in trouble only if there was only *one* way of explaining: the PSR would then be true only if every fact was explained with respect to that particular way of explaining, and there would be no room for fundamental facts. But such a possibility is quite distant: unless we are skeptics about building or dependence relations more generally, it seems intuitive that there are multiple such relations.

Second, a proponent of the PSR should care about fundamentality because it seems intuitive that a satisfactory explanation should terminate in fundamental facts. Fine, for example, says:

But there is still a plausible demand on ground or explanation that we are unable to evade. For given a truth that stands in need of explanation, one naturally supposes that it should have a “completely satisfactory” explanation, one that does not involve cycles and terminates in truths that do not stand in need of explanation.<sup>47</sup>

The idea here is intuitive: the fundamental facts are where explanation comes to a satisfactory end. If a commitment to the PSR is inconsistent with a commitment to fundamental facts, then it would appear that a proponent of the PSR has to do away with the possibility of completely satisfying explanations (a consequence close to a *reductio* of the PSR). Regardless of the merits of this type of argument, a relativized view of fundamentality allows a proponent of the PSR to also be committed to fundamental facts, and thus meet the demand (if there is such a demand) for completely satisfying explanations.

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<sup>47</sup> Fine (2010, p. 105).

One might still worry that the way in which the PSR can accommodate fundamental facts on a relativized account fails to capture a central role of fundamentality. The idea here is familiar from epistemology. It seems right to say that justification cannot go on infinitely. Suppose that I am justified in believing a proposition *p* because I am justified in believing *q*, and I am justified in believing *q* because I am justified in believing *r*, and so on, *ad infinitum*. But this seems like a vicious regress, in part because I cannot grasp an infinite number of propositions, and so I lack justification for believing *p*. This type of reasoning suggests that if we are to have justification for believing anything at all, there cannot be a regress of justificatory claims. On a metaphysical analogue of the epistemological claims, in order for a fact to be completely explained, the explanatory chain it figures in must terminate. But we cannot appeal to the same considerations as in the epistemological case: in the metaphysical case, the idealized thinker *could* grasp infinitely many explanatory claims. Schaffer (2010) provides one metaphysical analogue of the epistemological argument. On Schaffer's view, the 'reality' of non-fundamental entities is 'borrowed' from that of the fundamental entities in which they are grounded. Hence, without fundamental entities, non-fundamental entities would have no reality. As Schaffer argues:

Grounding must be well-founded because a grounded entity inherits its reality from its grounds, and where there is inheritance there must be a source. One cannot be rich merely by having a limitless sequence of debtors, each borrowing from the one before. There must actually be a *source* of money somewhere. Likewise something cannot be real merely by having a limitless sequence of ancestors, each claiming reality from its parents. There must actually be a source of reality somewhere. Just as wealth endlessly borrowed is never achieved, so reality endlessly dependent is never realized. (2016, p. 95)

It looks as though if Schaffer is right, then facts that are fundamental relative to a way of explaining (and not fundamental in the absolute sense) cannot capture a central role of the

fundamental. To see why, suppose that different ways of explaining were analogous to different ways of acquiring wealth (borrowing, stealing, etc.). Then getting to the end of a sequence of borrower would not be enough for the last borrower to have wealth. The first borrower must still have acquired the money from somewhere (e.g. from a robber). So relativizing wealth acquisition to a way of acquiring wealth does not guarantee that there's a source of wealth. A fact that is fundamental only relative to a way of explaining likewise cannot be a source of reality in Schaffer's sense.

Yet I want to suggest that Schaffer's example actually supports a different conclusion. To see why, let us return to the parallel with epistemology. In response to the sort of regress argument rehearsed above, so-called 'foundationalists' about justification posit a level of 'basic' beliefs. These beliefs serve a function structurally parallel to that of fundamental facts. However, foundationalists do not characterize basic beliefs in a way that properly parallels the way that absolutists about fundamentality characterize fundamental facts. Whereas absolutists insist that fundamental facts are absolutely unexplained, foundationalists standardly do not permit basic beliefs to be unjustified. Instead, they insist that basic beliefs simply possess a *different kind* of justification than non-basic beliefs. For these theorists accept that non-basic beliefs must inherit their justification from a belief that is itself justified—a view that parallels Schaffer's claim that non-fundamental facts inherit their reality from fundamental facts. Yet this justification must itself have a source, albeit not the same sort of source as the justification of non-basic beliefs. If we read Schaffer's example with this parallel in mind, it is clear that for fundamental facts to play the requisite reality-conferring role, these facts must themselves owe their reality to some other source.

Whereas the absolutist about fundamentality cannot accommodate this feature of fundamental facts, my relativized view provides a straightforward answer: a fact that is fundamental relative to one way of explaining owes its reality—to borrow Schaffer’s terminology—to its being explained (and thus non-fundamental) relative to a different way of explaining. Hence Schaffer’s example, which at first seemed to undermine my account of fundamentality, really provides the basis for an argument against the absolutist account of fundamentality, and in favor of my alternative relativized account of fundamentality. This argument is distinct from those offered earlier—arguments that relied upon my view’s ability to solve puzzles that arise on an absolutist picture—since the present argument defends my relativized account by appeal to a central role for fundamentality.

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